A STUDY ON

SEETHAKAZHICHAL

Dissertation submitted to

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(Branch IV - Kuzhanthai Maruthuvam)

DEPARTMENT OF KUZHANTHAI MARUTHUVAM

GOVERNMENT SIDDHA MEDICAL COLLEGE

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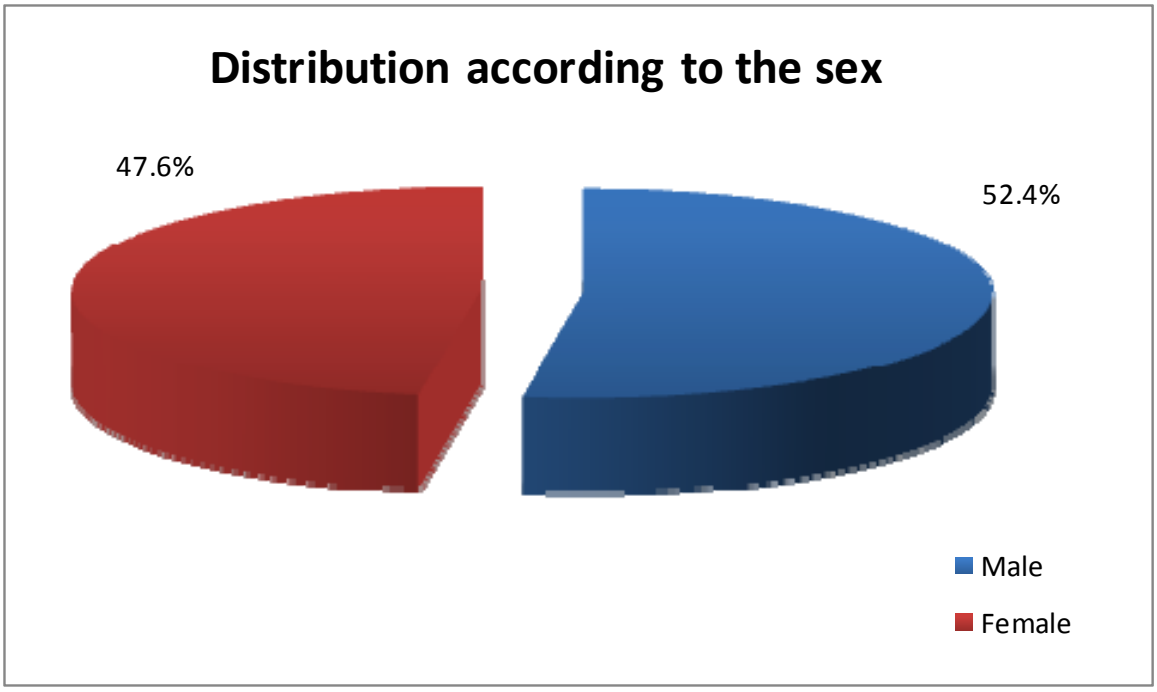
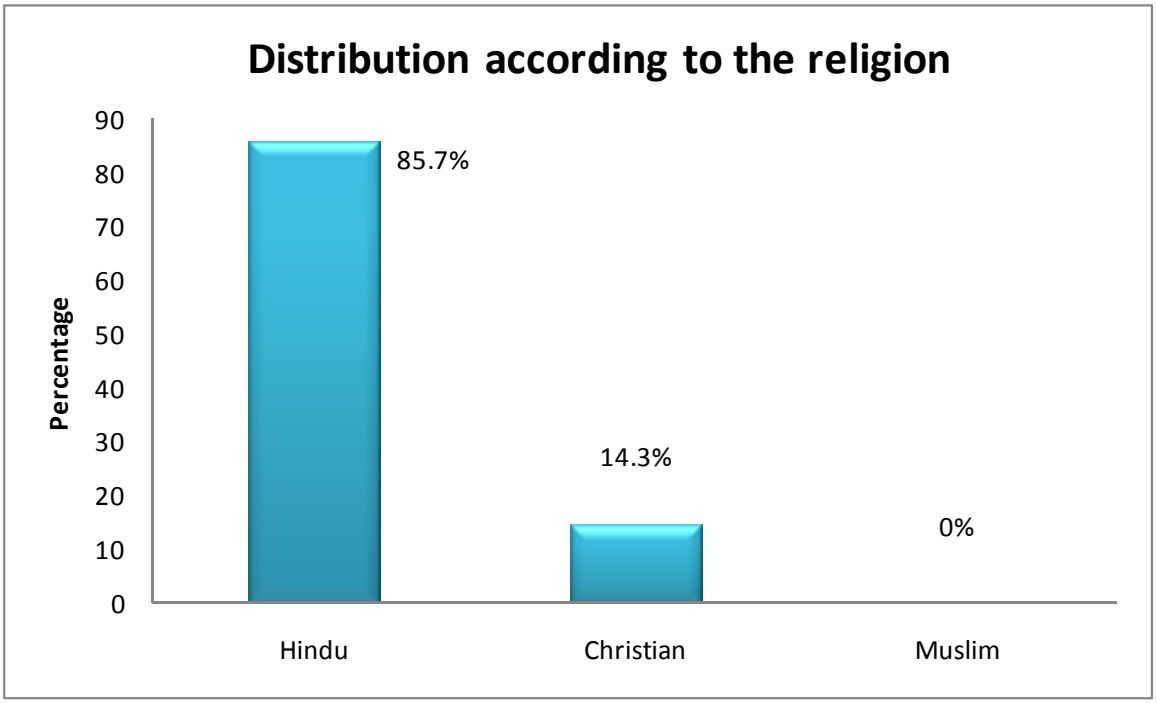
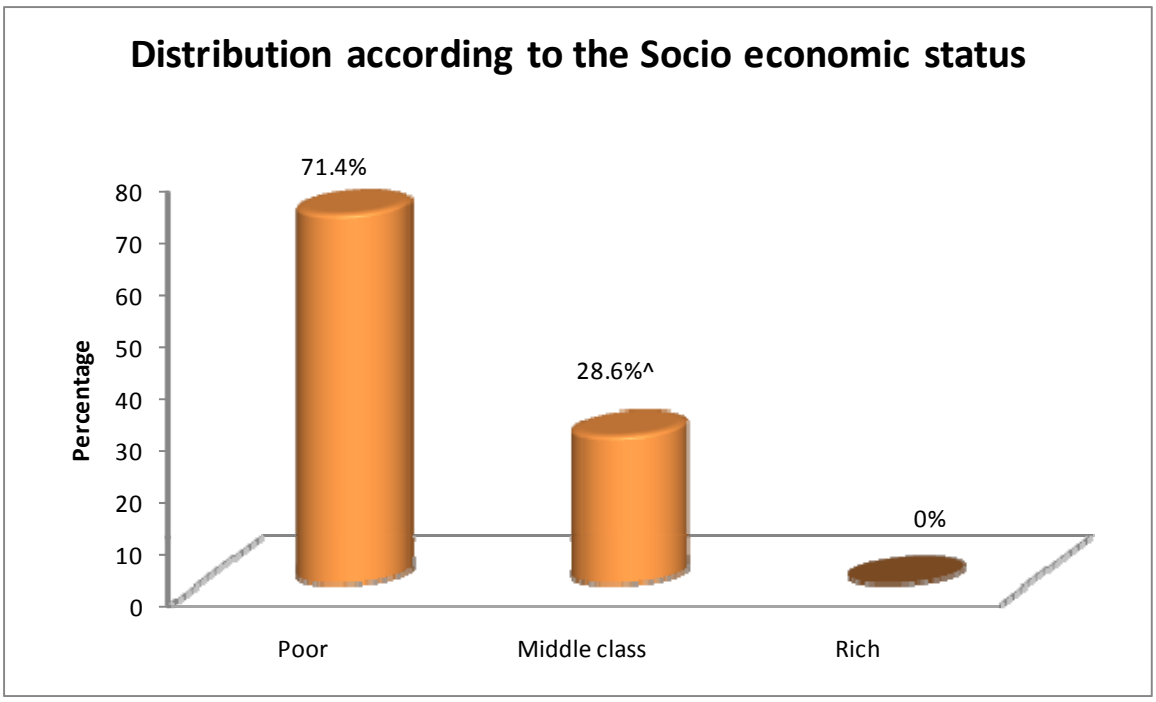
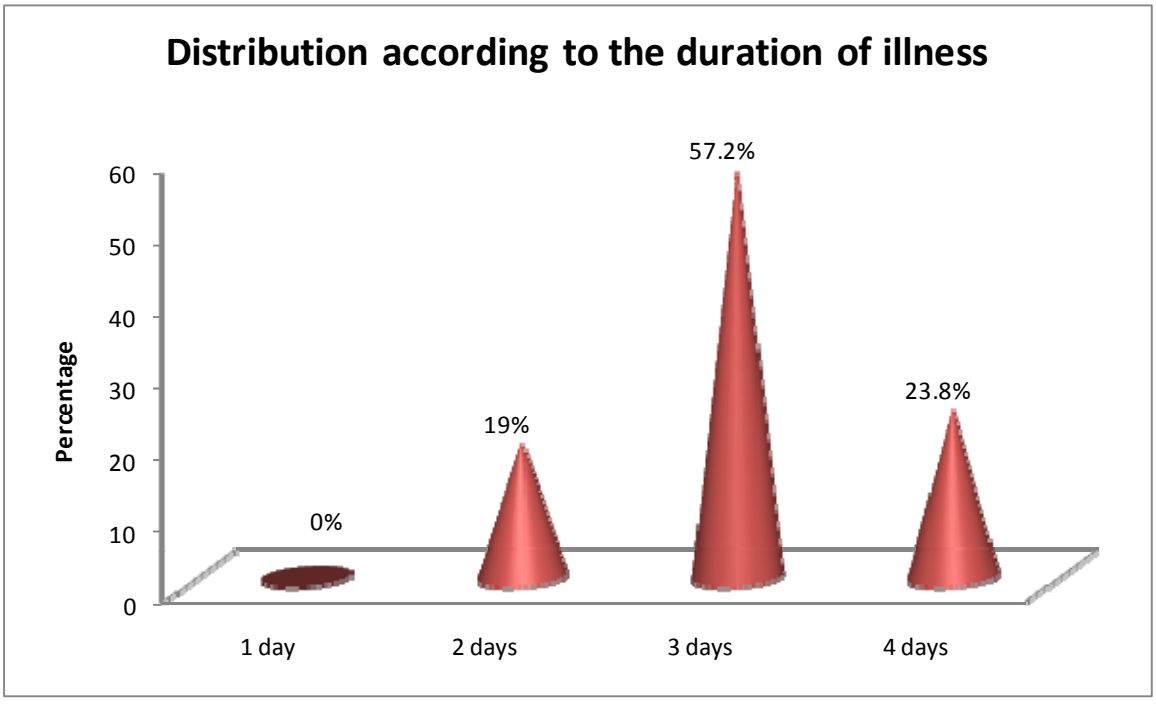
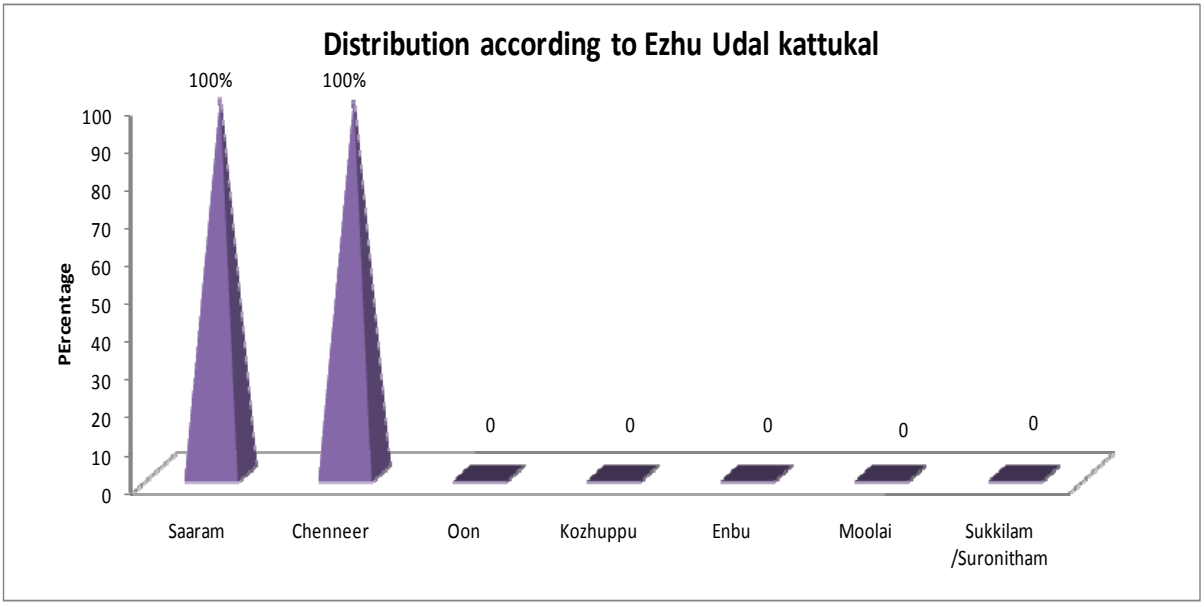
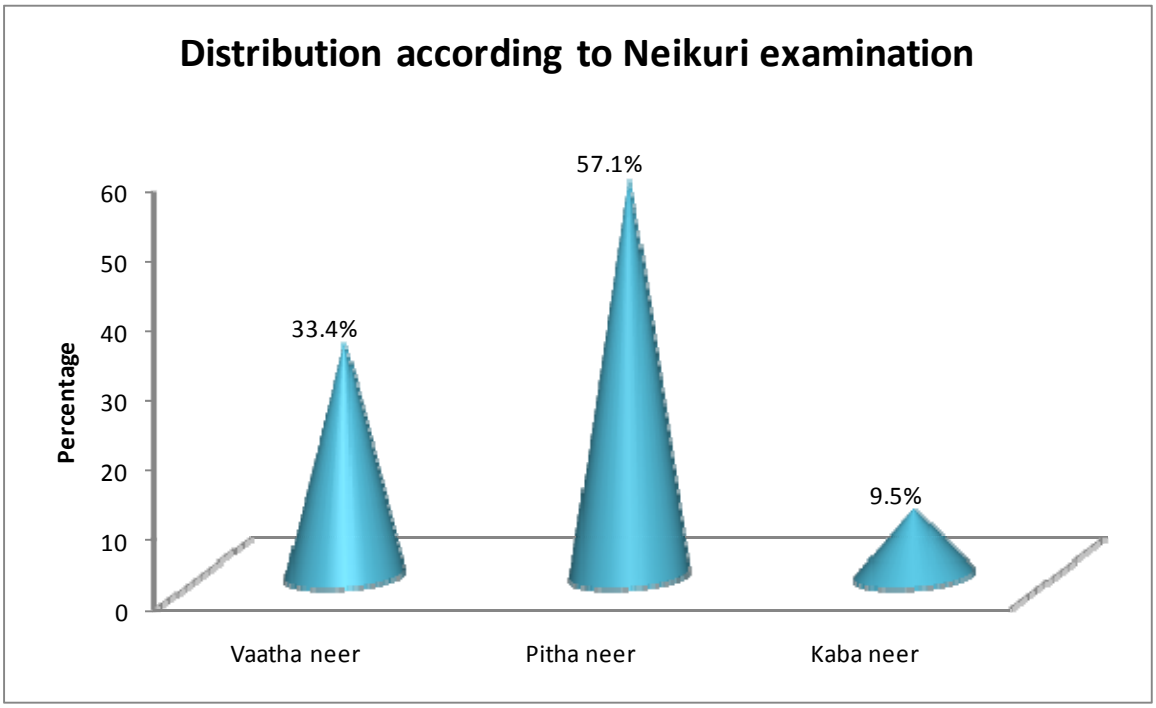

Distribution according to the sex
47.6%
52.4%
Male
Female

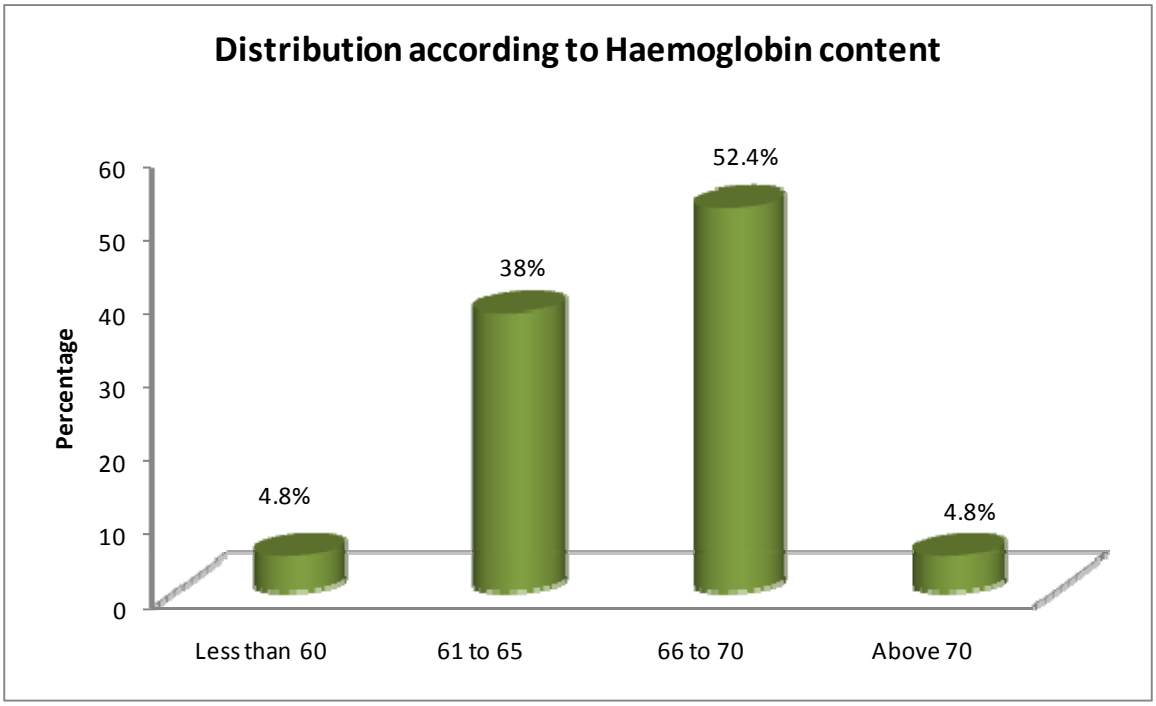

Distribution according to the religion
Percentage
90
80
70
60
50
40
30
20
10
0
85.7%
14.3%
0%
Hindu
Christian
Muslim

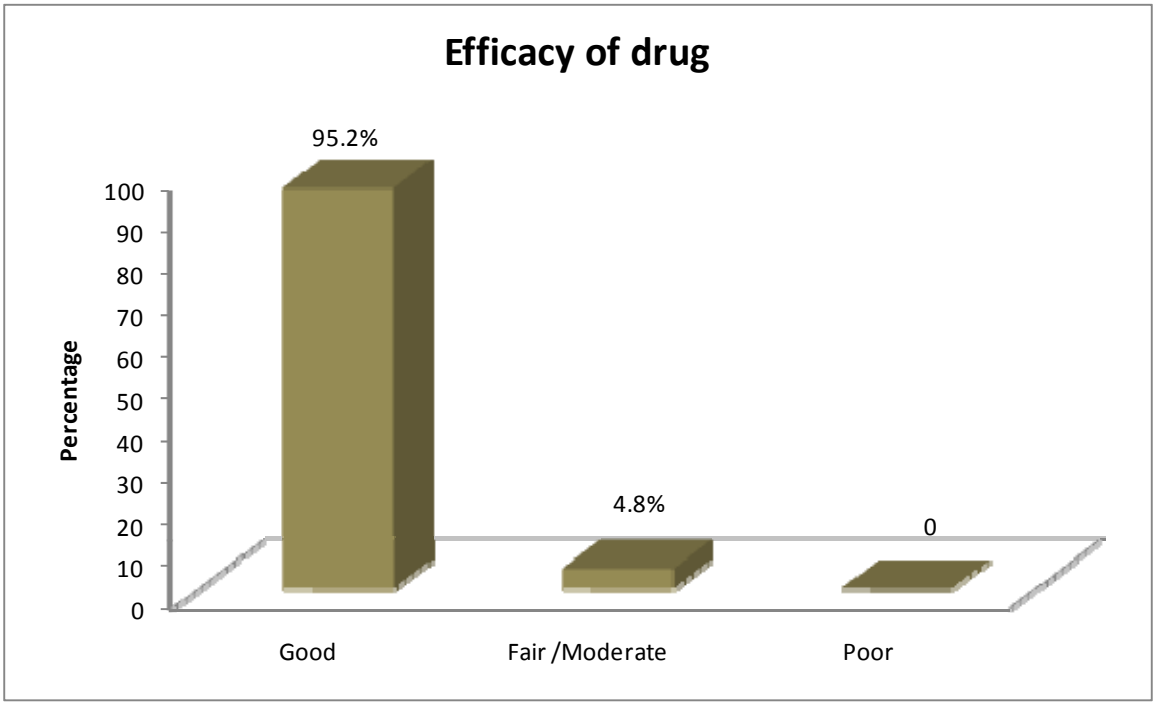

Distribution according to the Socio economic status
71.4%
28.6%^
0%
Percentage
80
70
60
50
40
30
20
10
0
Poor
Middle class
Rich


Distribution according to the duration of illness
57.2%
23.8%
19%
0%
Percentage
60
50
40
30
20
10
0
1 day
2 days
3 days
4 days


Distribution according to Ezhu Udal kattukal
PErcentage
100%
100%
0
0
0
0
0
100
90
80
70
60
50
40
30
20
10
0
Saaram
Chenneer
Oon
Kozhuppu
Enbu
Moolai
Sukkilam /Suronitham


Distribution according to Neikuri examination
Percentage
57.1%
33.4%
9.5%
60
50
40
30
20
10
0
Vaatha neer
Pitha neer
Kaba neer


Distribution according to Haemoglobin content
Percentage
60
50
40
30
20
10
0
4.8%
38%
52.4%
4.8%
Less than 60
61 to 65
66 to 70
Above 70


Efficacy of drug
Percentage
100
90
80
70
60
50
40
30
20
10
0
95.2%
4.8%
0
Good
Fair /Moderate
Poor

INTRODUCTION

Medicine is an art of fundamental importance to the healthy survival of humanity. Siddha, a Medical science is very ancient in origin, as old as the ancient civilization.

“கல்தோன்றி மண் தோன்றாக் காலத்தே

வானொடு முன்தோன்றிய மூத்தக்குடி”

Though it is believed that lord Siva was the first to teach the Siddha system of Medicines and then the system were followed by Siddhars like Tirunandhi thaevar, Agathiar, Pulathiar, Bohar, Tirumoolar, Thaeraiyer, Yugimuni etc, the history of Siddha Medicine dates back to the prehistoric period. Its origin and development is a matter of very remote antiguity.

The word Siddha comes from ‘Siddhi’ which means perfection or healthy bliss. It generally refers to the ‘Astama Siddhi’ i.e the eight supernatural powers. Those who attained these powers are known as Siddhars.

The basic principle of Siddha system is 96 thathuvas of which panchapootha theory and mukkutra theory was very important. The pathology in Siddha system depends upon the mukkutra theory viz, Vatha, Pitha and Kaba. The normal order of Vatha, Pitha Kaba is in proportion of 1:1/2:1/4 respectively.

This is stated in the following verses.

“வழங்கிய வாதம் மாத்திரை யொன்றாகில்
தழங்கிய பித்தந் தன்னி லரைவாசி
அழங்குங் கபந்தானடங்கியே காலோடில்
பிறங்கிய சீவர்க்குப் பிசக்கொன்று மில்லையே”

- குணவாகட நாடி

Imbalance in this results in disease this can be inferred from the following Thirukkural.

“மிகினும் குறையினும் நோய் செய்யும் நூலோர்
வளி முதலா எண்ணிய மூன்று”.

-திருவள்ளுவர்

Siddhars treated the body as well as mind and have also formulated the ways for the prevention of diseases. Siddhars defined medicine as follows,

“மறுப்பது உடல்நோய் மருந்தென லாகும்
மறுப்பது உளநோய் மருந்தென சாலும்
மறுப்பது இனிநோய் வாராதிருக்க
மறுப்பது சாவையு மருந்தெனலாமே”

The clinical methods through which the correct diagnosis made out are Envagai thervugal. They are Naadi, Sparissam, Naa, Niram, Mozhi, Vizhi, Malam and Moothiram.

According to Chattamuni:

“அண்டத்தில் உள்ளதே பிண்டம்
பிண்டத்தில் உள்ளதே அண்டம்
அண்டமும் பிண்டமும் ஒன்றே
அறிந்து தான் பார்க்கும் போதே”

Every minor change in the universe will immediately reflect on the human body. This is evident from the fact that the incidence of seethakazhichal is more common during the periods of change in seasons in India.

Balavagadam is a branch of medical science of siddhars which deals with the diseases and treatment of the children. Children are the future citizens. Hence their health is of paramount importance to our nation. The other names of medical care of children are Balamaruthuvam, pillaipini maruthuvam.

In Balavagadam, the diseases of children are broadly classified into Agakarana noigal and pura karana noigal.

Among the pura karana noigal, Seethakazhichal is a commonly occurring disease in infants and children. It is a disorder of gastro intestinal tract caused by micro organism due to poor personal hygiene and sanitation ultimately leads to derangements in tridosas and disease manifestation.

It has been clearly depicted in Gurunadi Nool (Shanmuga Velu 1987) that Seethakazhichal is caused by kirumigal and explained the pathogenesis of the disease. The aetiological factors, pathogenesis, clinical features of the disease explained in Siddha literature are more or less related to amoebic and bacillary dysentery described in modern system of medicine.

Even though there are many more medicines described in Siddha system for Seethakazhichal, ‘Madhulam pinju Choornam’ was selected for the present study which is purely an herbal medicine, easily available and harmless to infants and children. The ingredients of ‘Madhulam pinju Chooranam’ have the property of controlling Seethakazhichal without any adverse effects.

AIM AND OBJECTIVES

Prevention and cure are the basic aims of all system of medicine. The basic emphasis of Siddha system is on positive health viz to prevent diseases by careful dieting and proper relaxation of the mind to achieve a totality of health.

Seethakazhichal in children is a major health hazard in the developing countries like India, a common disease in the tropics and subtropics. If proper attention has not been given it may lead to many complications like dehydration, rectal prolapse, septicemia, etc.

India, being densely populated with people of different socio economic status, children with poor sanitary facilities, lack of personal and environmental hygiene are the common victims of this disease. It forms one of the major causes of sickness among infants and children which causes a heavy economic burden to health services. At the present time, the dysentery causing bacteria are resistant to many antibiotics, polyresistant strains are widely spreading.

As a Siddha paediatrician, an extra personal interest in the study of new drug for this common paediatric disease has been aimed. With this aim in mind, Madhulam pinju chooranam was tried in the patients suffering from seethakazhichal.

OBJECTIVES :

- To explore the most efficacious drug for Seetha Kazhichal.
- To collect the literal evidences regarding the disease seethakazhical as per Siddha System.
- To have a comparative study of the disease in Siddha and Modern aspect. (Amoebic dysentry and Bacillary dysentery)
- To evaluate the disease Seethakazhical clinically by careful examination on aetiology, clinical features, differential diagnosis, investigations, diagnosis, treatment, diet, prognosis, complications etc.
- To find out whether any adverse effects caused by Madhulam Pinju Choornam.
- To evaluate the biochemical and pharmacological analysis of the drug.
- To evaluate the efficacy of trail medicine on anti – microbial activity in vitro studies.
- To have a clinical trail on the Seethakazhical affected children with Madhulam Pinju Chooranam.
- To highlight the factors like hygienic condition, diet, climate on the incidence of this disease.
- To make awareness for the prevention of the disease.

REVIEW OF SIDDHA LITERATURE

"Seethakazhichal" is a disease which occurs both in children and adults. In various siddha literatures, it is described as a type of kazhichal noi.

In Siddha Maruthuvam, it is described separately. But in Balavagadam, it is classified under Kazhichal Vaguppu.

கழிச்சல்:

இயல்:

உண்ட உணவு செரித்ததும் செரியாததுமாகவும் கழிவதும், சில வேளை கீழ்க்குடல் வெதும்பியிருப்பின், அங்குத் தங்கமுடியாமையால், உடனே கழிந்துவிடுவதும், உடற்கு ஊட்டம் தருவதற்காக உண்ணும் உணவு குடலிற்றங்காது வெளியாகிவிடுதலும், உடலின் ஊட்டம் குறைந்து உடல் மெலிவடைவதும், உண்ட பொருள் அனைத்தும் அடிக்கடி பலமுறை கழிவதுமான இயல்புடைதல் கழிச்சலென வழங்கப்படும் (சித்தமருத்துவம்).

கழிச்சல் நோய் வகைகள் (Classifications):

Various classifications of Kazhichal noi, which have been described in several Siddha texts, are given below.

1. In Balavagadam (Pon Gurusironmani), three types of Kazhichal noikal have been described.

மாந்தக்கழிச்சல், கணக்கழிச்சல், ஆமக்கழிச்சல்/சீதக் கழிச்சல்

At the same time,

1. வெப்புக்கழிச்சல் 2. இரத்தக்கழிச்சல் 3. அதிசாரக்கழிச்சல்

4. கடுப்புக்கழிச்சல் 5. பொருமல் கழிச்சல் 6. பச்சிலைக் கழிச்சல்

7. விடாக்கழிச்சல்

have also been mentioned in the treatment of kazhichal noikal in Balavagadam.

2. Sambasivampillai have described the following Kazhichal noikal.

1. சீதக்கழிச்சல் 2. இரத்தக்கழிச்சல் 3. சலக்கழிச்சல்

4. சோபக்கழிச்சல் 5. வெள்ளுடைக் கழிச்சல்

6. வயிற்றுக்கழிச்சல் 7. சங்காரக்கழிச்சல்

3. In Uyir Kakkum Siddha Maruthuvan also called Vaidya Sara Sangirakam, fifteen types of Kazhichal noikal have been described.

"சொல்லுகிறேன் கழிச்சல்வகை தோடந் தன்னைச்
சுழிமந்தக் கழிச்சலெனச் செப்ப லாகும்
வெல்லுகிறேன் பாற்கழிச்சல் வரட்க ழிச்சல்
வீறான வாந்தியின்றன் கழிச்ச லாகும்
புல்லுகிறேன் கணக்கழிச்சல் மாந்தக் கழிச்சல்
புகழான ஆமத்தின் கழிச்ச லாகும்
கொல்லுகின்ற சலக்கழிச்சல் வெதுப்புக் கழிச்சல்
கூறான ரத்தத்தின் கழிச்ச லாமே."
"ஆமேதான் அதிசாரக் கழிச்ச லாகும்
அப்பனே பொருமலின் கழிச்ச லாகும்
போமேதான் சீதரத்தக் கடுப்பு மாகும்
பொல்லாத கழிச்சலென்று நாம மெய்தும்

தாமேதான் பச்சிலைக் கழிச்ச லாகும்

சார்வான விடாக்கழிச் சல்சாற் றலாகும்

நாமேதான் சொன்னோமே கழிச்சல் மார்க்கம்

நவின்றிட்டார் பாலருக்கு நவின்றிட்டாரே”

1. சுழிமாந்தக் கழிச்சல்
2. பாற்கழிச்சல்
3. வரட்கழிச்சல்
4. வாந்திகழிச்சல்
5. கணக்கழிச்சல்
6. மாந்தக் கழிச்சல்
7. ஆமக் கழிச்சல்
8. சலக்கழிச்சல்
9. வெதுப்புக்கழிச்சல்
10. இரத்தக் கழிச்சல்
11. அதிசாரக் கழிச்சல்
12. பொருமல் கழிச்சல்
13. சீதரத்தக் கடுப்பு
14. பச்சிலைக்கழிச்சல்
15. விடாக் கழிச்சல்

4. In Noi Nithanankal, ten types of “Kazhichal noikal” are given.

1. மூலக் கழிச்சல்
2. வாத கிராணி
3. பித்த கிராணி
4. சீத கிராணி
5. வாத பித்த கிராணி
6. பித்த சிலேத்தும கிராணி
7. வாத சீத கிராணி
8. தொந்த கிராணி
9. வயிற்றுக் கடுப்பு
10. வயிற்றுக் கொதிப்பு

5. According to “Agathiyar vaidya kaaviyam 1500” “Kazhichal” is classified into six types.

“கழிச்சலென்ற கிராணியிலே விதமா றப்பா

கண்டபித்தம் அனல்வாதம் வாயு வாகும்

அழிச்சலென்ற ஐயநீர் மூன்றுங் கூடி

அப்பனே பேதிக்கும் பலந்தான் போகும்

தெழிச்சலென்ற வாயுதான் மேக பேதி

திறமான மூலத்தின் தோட பேதி

பழிச்சலென்ற சங்கான பேதி யொன்று

பாரப்பா வாயுவொன்று ஆறு மாச்சே".

1. வாத கழிச்சல் 2. பித்த கழிச்சல்

3. கப கழிச்சல் 4. மூலக் கழிச்சல்

5. சங்கான கழிச்சல் 6. மேக கழிச்சல்

6. Same classification has been given in "Thirumoolar Vaidhyam Karukkidai 600".

"கழிச்சல் கிராணிக் கழியும் விதங்கேளு

அழிச்சிய பித்தம் அனல்வாதம் ஐயமாம்

செழுச்சிய வாயு சேர்ந்திவை மூன்றால்

பழிச்செனப் பேதிக்கும் பார்பெலம் போகுமே".

"பெலமான மேகத்தில் பிறந்த தொருபேதி

குலமான மூலத்தில் கொடியது ஒருபேதி

சலமான வாயுவால் சங்கித்தது ஒருபேதி

வுலமான ஆறும் வகுத்த முறையாமே."

The present topic "Seethakazhichal" has been selected from Balavagadam.

SEETHAKAZHICHAL:

இயல் (Definition):

வயிறு கடுத்து அடிக்கடி சிறிது சிறிதாயேனும் அல்லது வயிற்றுக்கடுப்பு அதிகமின்றி அளவு கடந்தேனும், சீதமும் குருதியும் கூடியேனும் கழியும். இது குழந்தைகள் முதல் பெரியோர் வரை வரக்கூடும் **(சித்தமருத்துவம்)**

சீதக்கழிச்சல், பாலவாகடம் நூலில் குழந்தைகளுக்கு உண்டாகும் கழிச்சல் நோய்களில் ஒன்றாகக் கூறப்பட்டுள்ளது. இதுவே ஆமக்கழிச்சல் என்றும் கூறப்பட்டுள்ளது. (பால வாகடம்) ஆமம் என்பது வயிறு. இது ஐயம் அல்லது சீதம் என்பதையும் குறிக்கும். எனவே இந்நோய் குடலில் ஐயம் பாதிப்பதனால் உண்டாகும் கழிச்சல் நோயாகும்.

Seethakazhichal means the dysentery due to specific inflammation and ulceration of the mucus lining of large intestine resulting in evacuation of stools mixed with mucus and blood (Sambasivampillai)

வேறு பெயர்கள் (Synonymes in various texts):

Balavagadam

1. ஆமக்கழிச்சல் 2. சீதக்கழிச்சல் 3. சீத பேதி

Siddha Maruthuvam

1. கடுப்புக் கழிச்சல் 2. சீத பேதி 3. சீத ரத்த பேதி

Pararasasekaram Balaroga Nithanam

1. வயிற்றுக்கடுப்பு 2. வயிற்றுளைவு

Noi Nithanankal

1. வயிற்றுக் கடுப்பு 2. வயிற்றுக் கொதிப்பு

Sambasivampillai

1. சீதக் கடுப்பு 2. இரத்தக் கடுப்பு 3. ஆம பேதி
4. ஆம ரத்த பேதி 5. சீத ரத்த பேதி 6 குழந்தை சீதபேதி
7. சீத ரத்தக் கழிச்சல் 8. சீத அதிசாரம் 9. சீத ரத்த அதிசாரம்
10. கிரகணி 11. கிராணி 12. சீத ரத்த கிராணி
13. பிரவாகிகம் 14. வயிற்று கொட்டல்

நோய் வரும் வழி (Aetiology):

The common causes for Seethakazhichal mentioned in various Siddha texts are as follows.

1. Intake of excess amount of any food.
2. Intake of food stuffs which are not easily digestable.
3. Intake of excessive pungent and sour tasted food stuffs.
4. Taking large amount of sweets, carbohydrate rich foods and mutton
5. Taking improperly cooked food stuffs.
6. Taking medicines which are having poisonous effects (Kara Marunthugal).
7. Drinking impure water like sunai neer (stagnant water) and karchunna neer.
8. Wandering in hot sun and exposure to cold air.
9. Living in over crowded areas.
10. Community and personal unhygienic conditions.
11. Suffering from “Seethasuram”.
12. Improper treatment for “Athisara Noi”.

The above mentioned causes are stated in the following verses.

“மானென்ற வயிற்றின்மந்த மிருக்கும் போது
மாப்பண்ட மதுரங்கள் மங்கை கோஷ்டி
ஊனென்ற மாமிசங்கள் வேகாப் பண்டம்

உண்டதாற் கிராணிவந்துற் பவிக்குங் கண்டாய்."

- யூகி வைத்திய சிந்தாமணி

"தானாக உண்டாகும் விதத்தைக் கேளாய்
தரணிதனிற் குளிர்ச்சியுடன் விடச்சத்துத் தானும்
தேனாக மிகுதீனி புசித்த லாலும்
திரண்டசனக் கூட்டத்தில் போவ தாலும்
மானான சீதசுரங் காணும் போதும்
மகத்தான இந்நோ யுண்டா மென்று
கோணான நூல்தனிலே பெரியோர் சொன்னார்
கொற்றவனே யதினுடைய குணத்தைக் கேளே."
"காணடா மந்தக்குடல் சவ்வுக் குந்தான்
கதிப்பான உஷ்ணந்தான் செல்லு மப்பா
ஊணடா வியாதிதான் அதிக மானால்
உட்குடலில் துவாரமுண் டாகும் பாரு
பேணியே வவ்போது சுரமுண் டாகும்
பெலமான திரேகந்தான் தளர்ச்சி காணும்
கோணடா பெருங்குடலின் இரணந்தா னப்பா
பொங்கமுடன் சிறுகுடலிற் செல்லுந் தானே".

- அகத்தியர் குணவாகடம்

The above stanza states that chronic Seethakazhichal is called as Girani, which occurs due to the formation of ulcers in the large intestine and rectum due to excessive heat. This affects the mucous membrane of the colon and rectum and causes Seethakazhichal.

The important cause of Girani is Kirumi (microorganisms) which is clearly stated in "Pathinen Siddharkal Naadi Sasthiram"

"சங்கையிலே விஷகரப்பான் வருமாறேது

சாரமுடன் கிருமி விழுந்தன்மையேது

பொங்கியங்கே யூணுருகும் கிராணியேது

.....

கருத்துடனேயிந்த வகைக் கருமங்கூறே."

"Gurunaadi Nool" explains the causative organisms and the pathogenesis of this disease.

"கேளுமினிக் கிருமியால் வந்தகிராணியைத்தான்

கிருபையுடன் மூலத்தில் வேவுகொண்டு

நாளுமது கிருமியதின் குடலைச் சுற்றி

ரத்தமுண்டாஞ் சுரோணிதத்தால் மலமுங்கட்டி

மீளுவது வாய்வு சென்று விரவித்தானும்

விரவியங்கே கலந்திருக்கில் கிருமியெல்லாம்

கோளுமது பலவிதமாய்க் கழியும் பாலர்

குடிகெடுத்த கிருமிசெய்த கிராணிதானே".

"Gurunaadi Saasthiram -235" also explains the same.

Due to excessive heat, the pathogenic micro organisms (Kirumikal) multiply in large numbers in the intestine. They may make the stools solid (Erugal) and decomposed producing foul smelling gases (Vayu). Kirumikal multiplied from the decomposed stools are responsible for Seethakazhichal. Thus Kirumikal is an important cause for Seethakazhichal.

முற்குறிகுணங்கள் (premonitory symptoms):

Head ache, nausea, pain in the abdomen, burning sensation in the anus, tenesmus due to increased peristaltic movement are the symptoms produced in the initial stage of the disease (Noi Naadal).

பொது குறிகுணங்கள் (General signs and symptoms):

Following the above premonitory symptoms, passing of loose stools containing small amount of mucus and blood is noticed. Later all these symptoms are aggravated.

Besides passing of mucus and blood, frequent scanty stools are evacuated. During that time intense abdominal pain is observed. Due to severe pain, the patient will be always in sitting posture. The patient may pass loose stools many times a day. If it is not controlled by proper treatment, the patient gets severe discomfort, naadi appears weak and perspiration is seen. Eyes will be sunken, tongue becomes dry and symptoms of muppini will occur and may be fatal. The above mentioned features are stated in “Siddha Maruthuvam”

General signs and symptoms of “Seethakazhichal” are also mentioned in ‘Agathiyar Gunavagadam’

“கேளடா முதலில்தான் வயிற்றி லப்பா
குறிப்புடனே மந்தந்தான் உண்டாம் பாரு
வாளடா குடல்முறுக்கும் வேதனையுங் காட்டும்
வளமான மலபாதை யடிக்கடியே வுண்டாம்

தேளடா போனவுடனே வேதனைதான் தீரும்
தெளிவான வியாதிதான் பலமாகும் வேளை
பாளடா குடலில்தான் இரணமுண் டாகிப்
பண்பாக அடிக்கடிதான் பேதி போமே".

"பேதிதான் போனபின்பு இளைப்புண் டாகும்
பெலமான மலத்தில்ரத்தஞ் சீதங் காணும்
ஆதியென்ற மலந்தானும் உண்டை கட்டி
அப்பனே தீய்ந்துஅது புழுக்கை போலாம்
வாதையுடன் மலந்தானு மிறங்கு மப்பா
வன்மையுடன் கடுப்புடனே முக்கல் காணும்
வாதிமனம் அலைவதுபோல் மனது மெத்த
வன்மையுடன் வேதனைகள் படுவான் பாரே".

"பாரடா மலமதுதான் துர்க்கந்த மாகி
பண்பாகக் கறுப்புடனே பச்சைநிறங் காட்டும்
ஊறுகின்ற மூத்திரப்பை கொதிப்புக் கண்டு
உத்தமனே மூத்திரந்தான் செவந்து மெத்த
தேரேநீ யடிக்கடிதா னிறங்கும் பாரு
தெளிவாகச் சிலவேளை நீர்ச்சுருக்குக் காணும்
சீரான நாடியது தீவரமாய்ச் சென்று
சிறுத்திருக்கும் நேர்மைதான் கண்டு கூறே".

- அகத்தியர் குணவாகடம்

Initially there is dysfunction in the colon which is followed by increased frequency of motion with small amount of mucus and blood, unbearable gripping pain and irritation of the anal region. Fatigue and weakness of the body will also be seen.

According to Pararasasekaram, the following signs and symptoms occur in Vayettru kaduppu.

“இடுப்புக் கடுத்து வயிறுளைந்திட் டிளகிச் சீத மற்றீந்து
முடுக்கித்துயர முடன்முலந் தோன்றி மலமுங் கழிந்திருக்கும்
அடுத்தோ ரன்ன மருவருக்கு மறவே யங்க மெலிந்துவரும்
தொடுக்கும் வயிற்றுக் கடுப்பென்று சொல்லுங் குணங்களிவையாமே.”

- பரராச சேகரம்-பாலரோக நிதானம்

Patients have gripping pain in the lower abdomen, with irritation in and around the anal region, rectal tenesmus with loose stools, loss of appetite, and weakness of the body due to excessive blood loss in stools. The same features have been described in

“இடுப்புக்கடுத்து வயிறுளைந்து இளகுச்சீத மத்தித்து
முடுக்குந்துயர மதிகமுமாய் முன்னமலமே கழிந்தடங்கு
மடுத்தோரன்னந் தனைத்தேடா யறவேயங்க மெலிந்துவருந்
தொடுக்கும் வயிறு கடுப்பிதென்று சொன்னோஞ் செய்யுந்துயர் கண்டே.”

- அகத்தியர் 2000

Patients have fever with abdominal pain, loss of appetite, sleeplessness, loose motion with mucus, joint pain, general weakness and shivering.

In chronic stage, regurgitation of milk, anaemia (due to blood loss with motion), fever, chillness of extremities and low pitched voice are observed.

“உண்டபா லெதிரெடுக்கும் உடல்பல முழக்கங் காட்டும்
சுண்டுமே ரத்த சாலச் சுரமிகிந்திருக்கும் மேனி
கண்டுசேர் மொழியுந் தாழ்ந்து காலொடு கையுநீத்து
விண்டிட லாமென்று விளம்பினர் முனிவர்தானே.”

-பாலவாகடம்

முக்குற்ற வேறுபாடுகள் (Pathology):

According to Siddhars, diseases are produced due to derangements in Thridosham (i.e) Vaatham, Pitham, and Kabam.

The following is the Siddha concepts of pathology of Seetha - kazhichal, described in “Thirumoolar Vaidhya Karukkidai 600”

“கழிச்சல் கிராணிக் கழியும் விதங்கேளு
அழிச்சிய பித்தம் அனல்வாதம் ஐயமாம்
செழுச்சிய வாயு சேர்ந்திவை முன்றால்
பழிச்செனப் பேதிக்கும் பார்பெலம் போகுமே.”

-திருமூலர் வைத்தியம் கருக்கிடை 600.

In “Seethakazhichal” occurring due to various causes, the Pitha dosham is vitiated from its normal condition. This in turn stimulates Abaanan (keezhnokkukkal) a type of Vaatham. Chenner (blood) and Kabam are also affected.

Vitiated Pitham causes nausea, vomiting and burning sensation in the rectum. Vitiated Pitham along with Kabam causes ulceration in the intestine and produces passage of loose stools with blood and mucus. Lower abdominal pain, tenesmus and pain during defaecation are

produced mainly by vitiated Vayu (Sambasivampillai)

Finally, all thridoshas are deranged from their normal position and produces “Muppini Noi” (Siddha Maruthuvam)

பிணியறிமுறைமை (Diagnosis):

According to Siddha Medicine, diagnosis of a disease is done by using the following principles.

1. Poriyaal arithal (Inspection)
2. Pulanaal arithal (palpation)
3. Vinaathal (Interrogation)

The physician should observe, interrogate and palpate the patient. Pori are the five organs of perception namely Mei, Naa, Mookku, Kann, and Sevi. Pulan are the five objects of senses namely Manam, Suvai, Roopam, Saptham and Sparisam.

Poriyaalarithal and Pulanaalarithal go hand in hand with the concept of examining the patient’s pori and pulan with that of the physician’s pori and pulan.

By Vinaathal (asking questions), the physician knows about the patient’s name, age, native place, socioeconomic status, complaints and duration, past history, dietetic habits, history of Pica, history of immunisation etc. If the patient is infant or child or unable to speak (deaf and dumb or having some other diseases) the informations may be obtained from their relatives or parents (informer).

Poriyaalarithal, Pulanaalarithal and Vinaathal are done with the help of Envagai thervugal and Ezhu udarthathukkal.

எண்வகைத் தேர்வுகள் (Envagai thervukal):

"நாடிப்பரிசம் நாநிறம் மொழிவிழி
மலம் மூத்திரமிவை மருத்துவராயுதம்."

- தேரையர்

Envagai thervugal are considered as the physician's instruments. By using them the physicians come to a correct diagnosis.

1. நாடி (Pulse)
2. ஸ்பரிசம் (Palpation)
3. நா (Tongue)
4. நிறம் (Colour of the skin)
5. மொழி (Speech)
6. விழி (Eyes)
7. மலம் (Stools)
8. மூத்திரம் (Urine)

Naadi (Pulse):

Naadi is an important observation for diagnosis, treatment and prognosis. It represents the function of heart and circulation of blood in the body. Thus naadi is responsible for the existence of life. It can be felt one inch below the wrist on the radial side by means of palpation with the tips of the index, middle and ring finger corresponding to vatham, pitham and kabam.

Normally the three humours namely vatham, pitham and kabam, exist in the ratio 1: ½: ¼. Derangement in these ratio leads to various disease entities and are best diagnosed by feeling the naadi.

Naadi nadai in Seethakazhichal or Girani:

According to Sathaga Naadi, the vitiated pitham with heat produces the symptoms of Seethakazhichal.

"தழைப்பான பித்தத்திலுட்டிணங் கொண்டால்,
சயமத்தி சுரம் வெதுப்பு சத்திகுன்மம்,
களைப்பான பொருத்து ளைவு**வதிசாரங்கள்**
கடுப்புடனே வயிற்றுவலி முலவாயு
இளைப்பாகி யூண்மறுத்தல் நாக்கசப்பு
இரவில் கனவுடனே சங்கார தோடம்
பழைப்பான பயித்திய நோயெரிவுதாகம்
வந்தணுகில் பல பிணிக்கும் வகையதாமே."

- சதகநாடி

Further, Sathaga Naadi explains that due to Pitha Vaatham naadi, Girani is produced.

"சிறப்பான பித்தத்தில் வாதநாடி
சேரிலுறுந்தாது நட்டமுதர பீடை,
உறைப்பாகச் செரியாமைக்குன் மஞ்சூலை
யுற்றசுரங்**கிராணி** வயிற்றிரைச்சல் மந்தம்
அறைப்பான ஓங்கார புறநீர்க் கோவை,
ஆயாசமிரக்க மொடு மயக்க மூர்ச்சை,
முறைக்காய்வு விஷ வீக்கம் முலவாய்வு,
முரடான நோய் பலவு முடுகும் பண்பே."

- சதகநாடி

In addition, Sathaga Naadi also describes that Thonthamana kabam with Vayu produces motion mixed with mucus.

“தொந்தித்த சேத்துமத்தில் வாயு கூடித் தொடர்ந்த
குன்மம் நெஞ்சடைப்பு சுவாசகாசம்,
வந்தித்த குரல்தனிலே உறுத்தலீளை
வழுவழுப்பு நீரூறல் **மலத்தில் சீதம்,**
வெந்தித்தல் கொழுத்தல் குத்துந் திமிர் வியாதி
வீச்சுடனே வலி யெட்டுந்திரட்சி பாண்டு,
அந்தித்த கிறுகிறுப்பு மயக்கம் விக்கல்,
ஆனபல பிணிகளுமே வந்தட ருந்தானே.”

- சதகநாடி

The same Sathaga Naadi also makes it clear that the aggravated Vaatha naadi will produce the disease girani.

“வாதமெனும் நாடியது தோன்றில்
சீதமந்தமொடு வயிறு பொருமல் திரட்சி வாய்வு
சீதமுறுங்**கிராணி** மகோதரம் நீராமை
திரள்வாய்வு சூலை வலிகடுப்புத் தீரை
நீதமுறுங்கி ருமிகுன்மம் அண்டவாதம்
நிலையும் நீர்கிரிச்சரங்கள் தந்து மேகம்
பேதகமா முதரபிணி மூலரோகம்
பேசவெகுபிணிகளுமே பொருளதாமே.”

- சதக நாடி

Sparisam (Palpation):

The temperature of skin (heat or cold) smoothness, roughness,

hardness, sweat, dryness, swelling, tenderness, ulcers, pigmentation and anterior fontanelle can be examined by sparisam.

In Seethakazhichal dryness of the body, raised body temperature, tenderness in the abdomen, sometimes enlargement of liver are present.

Naa (Tongue):

By the examination of tongue, the colour, coating, moisture or dryness, excessive salivation, deviation in movements, fissures, variation in taste, condition of teeth and gums are carefully noted.

In “Seethakazhichal”, coated tongue shows loss of appetite and indigestion. Pallor tongue shows the anaemic condition. Dryness shows dehydration.

Niram (Colour):

Colour of the skin indicates Vaatham, Pitham, Kabam, and Thontham, cyanosis, pallor, yellowish discolouration and hyperpigmentation.

In chronic condition of Seethakazhichal, the body is pale due to loss of blood in motion.

Mozhi (Speech):

In the examination of mozhi, high or low pitched voice, crying, laughing, slurring, speech in hallucination, nasal or hoarseness of voice, incompleteness while talking and breathlessness may be noted.

In the Seethakazhichal, mozhi may be affected due to loss of

appetite, poor intake of food, severe abdominal pain, malabsorption (due to frequent loose stools) and dehydration.

Vizhi (Eye):

Both sensory and motor disturbances are noted during Seethakazhichal. Colour, irritation, inflammation, ulceration, lacrimation, sharpness of vision, response of the pupil to stimuli are also being noted carefully.

In the case of Seethakazhichal, sunken eyes and pallor of eyes may be noted in severe condition.

Malam (Faeces):

In the examination of malam (stools), Niram (colour), Nurai (froth), Erugal (solid), Elagal (semisolid or liquid), quantity (increased or decreased) and smell (foul smell, offensive odour) can be noted. Other examinations like presence of blood, mucus and undigested matter in the stools should also be noted.

In Seethakazhichal, the malam may be semisolid or liquid, bulky or scanty in quantity, bright red or dark brown in colour. Sometimes offensive odour may be present due to the presence of blood and mucus.

Moothiram (Urine):

Colour, odour, quantity of urine, presence of froth, deposits, blood and pus, abnormal constituents like sugar, protein etc., and frequency of urination should be noted.

In Seethakazhichal, the quantity of urine is slightly diminished and yellow in colour.

According to Siddha aspect, moothiram (urine) may be examined in two ways.

a) Neerkuri and b) Neikuri

a) நீர்க்குறி (Neerkuri):

“வந்த நீர்க்கரிஎடை மணம் நுரை எஞ்சலென்
றைந்தியலுளவவை யறைகுது முறையே”.

- சித்த மருத்துவாங்கச் சுருக்கம்

According to this verse, the general features of urine noted are Niram (colour), Edai (Specific gravity), Manam (smell), Nurai (froth) and Enjal (quantity).

b) நெய்க்குறி (Neikuri):

Collection of urine for neikuri:

“அருந்துமாறிரதமும் அவிரோதமதாய்
அ.ர்கல் அலர்தல் அகாலவூண் தவிர்ந்தழற்
குற்றளவருந்தி உறங்கி வைகறை
ஆடிக்கலசத் தாவியே காது பெய்
தொருமுகூர்த்தக் கலைக்குட்படு நீரின்
நிறக்குறி நெய்க்குறி நிருமித்தல் கடனே.”

- தேரையர்

Prior to the day of examination, the patient is asked to take regular and balanced diet without any derangement in amount and quality. The

patient is allowed to have a good sleep. In the next early morning, the urine first voided is collected in a glass container for analysis. The analysis should be carried within one and half hours.

"நிறக்குறிக் குரைத்த நிருமாண நீரிற்
சிறக்க வெண்ணெய்யோர் சிறுதுளி நடுவிடுத்
தென்றுறத் திறந்தொலி யேகாதமைத்ததி
னின்றதிவலை போம் நெறிவிழியறிவும்
சென்றது புகலுஞ் செய்தியை யுணரே."

- நோய் நாடல் முதல் பாகம்

A wide vessel containing urine is kept under the bright sunlight in a calm place without shaking. A drop of gingelly oil is dropped on the surface of the urine. The derangement of three thathus is studied by observing the nature of spreading of the oil on the surface of the urine.

"அரவென நீண்டிடின் அ.ஃதே வாதம்
ஆழிபோற் பரவின் அ.ஃதே பித்தம்
முத்தொத்து நிற்கின் மொழிவதென்கபமே."

- நோய் நாடல் முதல் பாகம்

- ❖ If the oil spreads like a snake, it indicates vaatham.
- ❖ If the oil spreads like a ring, it indicates pitham.
- ❖ If the oil remains like a pearl without spreading, it indicates kabam.

In "Seethakazhichal", oil spreads like a snake or ring indicating the vitiation of vaatham and pitham.

Complications:

"உண்டாகும் பேதிதான் உக்கிரமாய்க் கண்டால்
உத்தமனே குடலுக்குள் துவாரங் கண்டு

நன்றான குடல்சவ்வுத் தாபிதமே காணும்
நலமான ரூரலில்தான் சீக்கட்டிக் கொள்ளும்
பண்டான இரணமுலர்ந்து குடற்சுருங்கி னாக்கால்
பளிச்சென்று மலபந்தம் உண்டா மப்பா
சிண்டான சிலேட்டுமச்சவ்வு அழுகிப் போனால்
சிறப்புடனே சுரப்புக்கண்டு இறப்பான் காணே."

"காணுகின்ற ரோகந்தான் பழகி விட்டால்
கண்டிதமாய்ச் சீக்கிரத்தில் சிட்சைசெய்தா லுந்தான்
பூணுகின்ற ரோகந்தான் வசப்ப டாது
பொல்லாத குடற்சவ்வு சுருங்கிப் போனால்
ஆணிபோ லதிருக்கும் கிரந்திநோய் கொல்லும்
அப்பனே திரேகந்தா னிளைத்துப் போகும்
சாணான திரேகந்தோ லுரிந்து போகும்
சதிராக ஒருகுணமாய் நில்லா தென்றே."

- அகத்தியர் குணவாகடம்

From the above verses, it is clear that severe pethy leads to perforation and inflammation of the colon, liver abscess, intestinal obstruction and constipation. If the mucous membrane is destroyed, oedema will be formed. Sometimes it may end fatally.

According to Kannusamy

"பாண்டு பிரமேகம் பன்வாத சூலைகுன்மம்
வேண்டா சயஞ்சந்நி வெண்சோபை - நீண்ட
அதிநீரே காமாலை யானபிணி தம்மு
ளதிசாரமா காதறி."

- கண்ணுச்சாமியம்

If the above diseases are associated with girani, it may lead to a fatal outcome.

He also adds that,

"சந்நி **யதிசாரஞ்** சாருங் கிராணிகுன்மம்
உன்னிய சயகாசம் உட்காய்ச்சல் - துன்னியே
போக்கும் விடசோபை பொல்லாத நீரிழிவில்
வீக்கங்கூ டாதென்றே வின்."

- கண்ணுச்சாமியம்

Further he says,

"சந்நி விடசோபை சார்குன்மம் நீரிழிவு
துன்னுங் **கிராணி** சுரம்பேதி -பன்னுபிர
மேகம் சயமிவற்றுள் முச்சுவிக்கல் மேல்வீக்கம்
ஆகி லுயிர்போ மறி".

- கண்ணுச்சாமியம்

தீரும்தீராநிலை (Prognosis):

"Seethakazhichal" is a curable one with proper medicine at proper time. If it is not treated with proper medicine, it leads to severe discomfort, ulceration of colon causing passage of excessive amount of blood and mucus. Pulse appears weak; perspiration (excessive sweating) is seen. Eyes become sunken and there is dryness of tongue. Pallor of the body due to excessive loss of blood may leads to muppini. Finally end in fatal condition.

நோய்க்கணிப்பு விவாதம் (Differential diagnosis):

Seethakazhichal should be differentiated from other kazhichal noikal.

1. **மாந்தக்கழிச்சல் (Maanthakazhichal):**

“வாந்தி பிரமாந்தி மூர்ச்சையதாய் வாய்ந்து குரலுஞ் சீரணித்துக்
காய்ந்து மேனி வெதுவெதுப்பாய்க் கைகால் குளிர்ந்து வலியுண்டாம்
சேர்ந்து கழியு மலந்தானும் சீர்கெட் டிருக்கும் பலவிதமாய்ப்
போந்த மாந்தக் கழிச்சலிது பொல்லா தெனவே புகன்றனரே”.

- பாலவாகடம்

Vomiting, loss of consciousness, hoarseness of the voice, dryness of the skin, fever, coldness of the limbs, convulsions and different types of loose stools are seen in Maanthakazhichal.

2. **கணக்கழிச்சல் (Kanakazhichal):**

Stools may be mucus or curdy milk or curry water, chillness of the hands and legs, deafness, fever, and restlessness are seen.

”சீதங் கழியு மலங்கழியும் திரும்பிக் கெட்ட பால்போலே
போதக் கழியுங் கறித்தண்ணீர் போலுங் கையுங் கால்குளிர்ந்து
காதை யடைக்கும் வெதுப்புண்டாம் கையிற் பிள்ளை தங்காது
கோதா யிந்தக் கணங்கண்டால் குலவு மிதன்பேர் கழிகணமே”.

- பாலவாகடம்

Seethakazhichal should also be differentiated from Vaathakazhichal, Pithakazhichal, Kabakazhichal, Mukkuttrakazhichal, and Oozhi noi.

மருத்துவம் (Treatment):

In Siddha system of medicine, the principle of treatment is bringing back the vitiated thathus to their normal position by giving proper medicine

"முன்றிலொன்றுயர்ந்ததை முன்னரறிந்து,
முந்தியதனை யொழித்திடு மருந்திடு
தணியும் நோயின் தந்திரமிதுவே
பேணிக் கணித்திடின் பிறவாய் பின் குணம்."

- நோய் நாடல் முதல் பாகம்

மருத்துவ வழிமுறை (Line of treatment):

1. சீதக்கழிச்சல் நோயில் தன்னிலை பிறழ்ந்த அழல்குற்றத்தையும் வாதக் குற்றத்தையும் (கீழ்நோக்குக்கால்) தன்வழிப்படுத்த வேண்டும்.
2. Specific medicine for arresting the passage of loose stools with blood and mucus should be given.

A large number of medicines are stated in different literatures. Among them an economical and efficacious medicine is madhulam pinju chooranam administrated three times a day with buttermilk.

Dose: 250 mg – 1gm (dose varies with age adjusted according to the condition of the patient and severity of the disease)

பத்தியா பத்தியம் (Diet regimen):

Yugimunivar Vaidya Chinthamani restricts "Langhanam" for Seethakazhichal which is understood in,

"விளம்பவே ***யதிசார***மான பேர்க்கும்

மிகுந்த கெர்ப்பிணி ஸ்திரிக்கும் கிழவனார்க்கும்
இளம்பவே யிளைத்தவர்க்குங் குழந்தைகட்கும்
இடுக்கண்ணோய்க் காரருக்கும் சயரோகிக்கும்
உளம்பவே உபவாசமான பேர்க்கும்
உறுபித்த தேகிக்குங் **கிராணி**யோர்க்குந்
துளம்பவே தொந்தமாம் ரோகியர்க்கும்
சூடுமுட் காய்ச்சலாஞ் சுதேகர்க்கே
.....
மிகவாகும் லங்கணமாம் விதியாகாதோ."

- யூகிமுனி வைத்திய சிந்தாமணி

In infants breast feeding should be appreciated. It prevents dehydration also.

"இருந்தோஷம் போக்கு மிகற்கிரிச்சரந் தீர்க்கும்
அருந்து மருந்தின னுபானம் -பொருந்தும்
அஞ்சனத்திற் காகு மனல்வறட்சி நீக்கிவிடும்
பஞ்சினடி மாதர் முலைப் பால்."

- பதார்த்தகுண சிந்தாமணி.

As per Pathartha Soodhamani

"மாதர்தம் முலைப்பால் சேடம் வரட்சியே யிரும றாகம்
காதிடு முல ரோகங் கணைச்சுரம் பயித்தி யம்போம்."

The advised diet as per "Pathartha Guna Chinthamani" are,

Vaazhai pinchu(Vaazhai kachchal), Athi Pinchu, Twice cooked rice, Kaar Kuruvai kanji, Manakaththai rice kanji and kanji of arrow root flour.

“மானேவயிறு கழிவார்க்கு வாழைக்கச் சலத்திக்காய்
கானே திரியுமூர்க்குருவி காடைஉடும்பு கவுதாரி
தானேயாகு முயலுலரிற் றக்குளத்துக் கருவாடா
மீனேவிரும்பித் தின்பீரால் வீணேயுயிரை யிழந்தீரே.”

Flesh of Oorkuruvi, kaadai, udumbu and gowthari are the non-vegetarian foods which are pathiyam. Ulari, rabbit, dryfishes and fishes should be avoided and these are all considered to be apathiyam.

As per Pathartha Guna Chinthamani, cow’s butter milk, buffalo’s butter milk and goat’s milk are useful in Seethakazhichal.

“வீக்க மகோதரமுள் வீறுகுன்மம் பாண்டுபித்தந்
தாக்கு மருந்திட்டததி சாரமொடு - கூக்குரலே
மாறாத் திரிதோஷ மந்தமனற் றாகம்போம்
வீறாவின் மோருக்கு மெய்.”

- பதார்த்தகுண சிந்தாமணி.

“தாகங் கிராணி சலங்கழிச்சல் காமாலை
ஆகங் குடைபுழுவு மற்றுப்போ - மோகமுறுந்
தேவா மிருதமுமாஞ் சீர்மானி டர்தமக்கு
மூவா மருந்தெருமை மோர்”.

- பதார்த்தகுண சிந்தாமணி.

Nelpori kanji or Nelpori water is useful for “Seethakazhichal”. It also prevents dehydration (Pathartha Guna Chinthamani).

“நெற்பொரியைத் தின்றா னெடுந்தாகம் வாந்திமந்த
மற்பித்த வாத மதமூர்ச்சை - பற்பலவாம்
பேதி யரோசிகை பேருவகை விட்டொழியுஞ்
சுாதி மடமயிலே சாற்று”.

- பதார்த்தகுண சிந்தாமணி.

In Pararasasekaram, the following stanza mentions the diet regimen of vayettrulaivu, and explains the benefits of buttermilk and also about other of additional foods. The same is explained in Chikitcha Ratha Deepam.

"வரகுசோ றுடனல் லெண்ணெய் வைத்தநீர்ச் சோறுமோரும்
தரமிகு மிரச வாழை தங்கிய கனியு நன்றாம்
புரமிகு முசுட்டைக் கீரை பொருந்திய கறியு நன்றாம்
உரமிகு மோருங் கூட்டி யுண்டிடி லுளைவு போமே."

In Pathartha Guna Soodhamani, describes that drinking water should be boiled and then cooled properly,

"வண்மையாய்க் காய்ச்சி யாற வைத்தநீ ருழலை தாகம்
அண்ணிய மூர்ச்சை விக்க **லதிசார**ந் திரிதோ ஷம்போம்."

Pathartha Guna Chinthamani stated that, the following diet such as karamani keerai, kattu parangi leaves, leaves of perumpayaru, Agathi leaves, katharikai and fishes should be avoided.

"காரா மணிக்கீரை காட்டுப் பறங்கியிலை
பேராம் பெரும்பயற்றின் பேரிலைகள் - சீரா
ரகத்தி பெருங்கத்திரிக்கா யாயிழையே மீன்கள்
பகைத்ததிக **பேதி**தரும்ப பார்".

- பதார்த்தகுண சிந்தாமணி

Prophylaxis:

1. Personal hygiene should be maintained. It plays an important role in the prevention of "Seethakazhichal". By following Naal

ozhukkam, kaala ozhukkam and Noi illaneri which are mentioned in the Siddha texts, Seethakazhichal can be prevented. (Noi Illa Neri)

Some more preventive measures are given below.

2. Uncooked and half cooked foods should be avoided.
3. Drinking water should be boiled and cooled.
4. Fruits and vegetables should be eaten after washing them.
5. Hand washing before eating, nail cutting, use of foot wears etc. should be appreciated.
6. Toilet should be used for defaecation.
7. In infants breast feeding should be appreciated.
8. Excessive sweets should be avoided.
9. Exposed food items, sold in shops or markets should be avoided.

REVIEW OF MODERN LITERATURE

DYSENTERY:

It is the term used for diarrhoea with visible mucus and blood. Dysentery is also often associated with fever and tenesmus. Common clinical features of dysentery include anorexia, rapid weight loss and complications such as renal failure and encephalopathy.

Dysentery results from "Entero invasive" microorganisms that penetrate through the mucosa and cause inflammation of intestinal wall. Some of the entero invasive organisms are

I. Bacteria : *Shigella (S. sonni, S.flexneri, S.boydii, S. dysenteriae)*

Escherichia coli (Enterotoxigenic, Enteropathogenic)

Salmonella sp.

Staphylococcus sp.

Campylobactor sp.

Yersinia sp.

II. Protozoa : *Entamoeba histolytica*, *Giardia* lamblia., etc.

III. Virus : Rota virus, Norwalk and allied viruses.

The two main forms of dysentery are,

1. Bacterial (bacillary) dysentery and
2. Protozoal (amoebic) dysentery.

The signs and symptoms of Seethakazhichal are nearly related to bacillary and amoebic dysentery in Modern system of Medicine.

BACILLARY DYSENTERY:

Synonym: Shigellosis, Shigella colitis.

Definition:

Bacillary dysentery is an acute infection of the bowel caused by the organisms belonging to the genus *Shigella*. The disease is more common in infants than in adults.

Aetiology:

The causative agents are Shigellae. Shiga bacilli was named after Kiyoshi Shiga who isolated the bacilli during a severe epidemic of dysentery in Japan in 1896, *S.dysenteriae* bacilli. They are small, gram - negative, non-motile rods (1 to 3µm in diameter) and non-encapsulated with curved ends, that grow on the usual culture media. They belong to the family Enterobacteriaceae and divided into four groups based upon serologic similarity and biochemical reactions.

1. *S. dysenteriae* (group A, 12 serotypes).
2. *S. flexneri* (group B, 6 serotypes),
3. *S. boydii* (group C, 18 serotypes) and
4. *S. sonnei* (group D, 1 serotype).

Epidemiology:

Bacillary dysentery is endemic all over the world. The source of infection is the dysentery patient or carrier.

S. sonnei is the most frequently isolated serotype. *S. flexneri* is

second in importance. *S.dysenteriae* serotype 1 tends to occur in massive epidemics. It shows special predilection for child population. In most of the developing countries *S. flexneri* is more common than *S. sonnei*.

The age specific attack rate is highest in the first four years of life. Infants in the first few months of life are rarely symptomatically infected with *Shigella* because breast milk contains antibodies to both virulence plasmid coded antigens and lipopolysaccharides. There appears to be no sex predilection.

Susceptibility to dysentery is very high, particularly in the second and third year of life. Various factors that reduce a patient's resistance, such as acute or chronic infections (immunodeficiency), artificial feeding (non breast fed babies), hypotrophy, hypovitaminosis, etc., increase susceptibility. After an attack, immunity is type-specific and short lived, fading apparently within a few months. The immunity is especially unstable after *S. sonnei* dysentery.

S.dysentriae occurred in south India in the years 1974-78 and in the eastern parts of India in mid 1980.

Increased attack rates occur in nursing home patients, children in day-care centers, residents of facilities for the mentally ill.

Mode of transmission:

- In developing countries, it is usually acquired by ingesting contaminated food or water, and faeco-oral contamination

- Direct person-to-person spread by contaminated hands (dysentery has therefore been called ‘the disease of dirty hands) or other indirect vectors are common.
- Through fomites such as door handles, water taps, lavatory seats, eating utensils, toys etc.
- House flies can have asymptomatic gut colonization, excreting *Shigella* in faeces and carrying the organisms on their legs and foot hairs. Cockroaches also transfer the cysts to food articles.
- Closed environments, especially of people with underlying disease, low sanitation standards in populated localities, over crowding, poor sanitary habits in the population, inadequate medical services and poor nutritional states, all predispose to epidemic Shigellosis.
- Crowding, poor personal hygiene and lack of sanitary facilities significantly increase the likelihood of intrafamilial spread of infection.
- Day-Care centers are an important focus of *Shigella* outbreaks due to the gathering of young, susceptible, children who practice poor personal hygiene, they readily contaminate their environment.
- The organism can survive in water and buffered food (such as milk and grains) for months.

Incidence:

Highest during the summer and autumn months due to increased breeding of flies, over heating, a change of diet.

Pathological anatomy:

The most characteristic pathological changes in dysentery are in the large intestine, chiefly in its distal portion. In severe forms, the whole large intestine and the adjacent portion of the ileum may become involved.

The inflammatory process in the intestinal mucosa is due to the action of both the dysentery bacteria themselves and their endotoxins. The Shigellae penetrate the epithelial cells and multiply in them.

The mucus membrane of the intestine is swollen and brightly hyperaemic in places, with areas of microhaemorrhages. Zones of necrosis and epithelial desquamation, hyperaemia, oedema and round-cell infiltration, not only of the mucous membrane but also partly of the submucosa, are seen.

In the chronic form, regeneration is sluggish or absent. The mucous membrane of the large intestine is pale, focal catarrhal, catarrhal follicular inflammation and sometimes catarrhal-erosive processes are revealed.

Pathogenesis:

The main virulence property of *Shigella* is the ability to invade mammalian cells.

Following ingestion, *Shigella* adhere to intestinal epithelial cell-surface receptor sites, generally the retrosigmoid and distal colon, causing an alteration of the microvillus surface of the brush border that leads to vesicle formation on the cell membrane. The organisms that enter the cell cytoplasm via., direct vesicular penetration and by pinocytosis, initially surrounded by a membranous vacuole. Disrupting this barrier, the bacteria become free within the cytoplasm of the epithelial cells and subsequently spread into the cytoplasm of the adjacent epithelial cells. Overt disease is produced by *Shigella* multiplication within host tissue cells, causing eventual ulceration of gut mucosal surfaces. Host gut epithelial cell penetration by *Shigella* is usually limited to the mucosa, with the sites of most intense inflammation correlated with the highest local bacterial inocula. Fibrinous purulent exudative membranes are often apparent on the involved mucosal surfaces.

S. dysenteriae (Shiga bacillus) produces cytotoxins that kill cells in tissue culture and stop protein synthesis in primary human epithelial cell-line cultures. This toxin may account for the severity of infection by *S. dysenteriae* serotype 1 relative to other *Shigella* strains. There is also evidence that this toxin is involved in the pathogenesis of the haemolytic uremic syndrome, a complication of infection with *S.dysenteriae* serotype 1 infection.

Incubation period:

1 to 7 days after ingestion of the organisms.

Clinical manifestations:

Onset of fever to 40^0C, generalized malaise and crampy abdominal pain are common, over third of infected children have an associated brief, uncomplicated generalized seizure. Diarrhoea occurs several hours later. Initially the stools are bulky, with a semiliquid - to-liquid consistency, but without apparent blood or mucus evolving into frequent small volume bloody mucoid stools due to colonic invasion. Tenesmus, faecal urgency, diffuse abdominal pain, prostration and bloody diarrhoea are frequent. *S. dysenteriae* produces a more severe clinical illness than other *Shigella* strains.

Physical examination of acutely ill patients reveals systemic toxicity, often with pronounced fever. The patient's abdomen is often diffusely tender, usually without rebound, and occasionally intensely tender, in the lower quadrants. Bowel sounds are generally hyperactive. If dysentery with repeated episodes of stooling has preceded, an atonic portion of the rectum may be prolapsed. Proctoscopy, especially it performed after several days of dysentery, reveals friable, oedematous, hyperaemic mucosa. Areas of intense erythema, with focal ulcerations covered by a mucopurulent exudate, may also be apparent.

Neurologic symptoms such as convulsions, lethargy, head ache, confusion and hallucination occur in 10 to 35% of children with Shigellosis. Seizure frequency indicates the production of a neurotoxin by *Shigella* most important complication is dehydration with its attendant risk of renal failure and death.

Complications:

The complications associated with the dysenteric process itself are encephalitis, neuritis, prolapse of the rectum and they occur chiefly in severe forms. The complications may be caused by secondary infections like bronchopneumonia, stomatitis, gingivitis, thrush, otitis, pyodermitis, furunculosis, pyuria and nephritis.

The important complications of dysentery are dehydration, convulsion, haemolytic uremic syndrome, sepsis, disseminated intravascular coagulation, rectal prolapse, toxic megacolon, pseudomembranous colitis, cholestatic hepatitis, conjunctivitis, iritis, corneal ulcer, arthritis, Reiter's syndrome, cystitis, myocarditis, vaginitis and Ekiri syndrome. Severe dystrophy, avitaminosis and anaemia may result from a prolonged course of dysentery and inadequate therapy. Secondary toxaemia often develops.

Diagnosis:

Essentials of diagnosis:

- ❖ Abdominal colic with bloody diarrhoea
- ❖ Fever and malaise
- ❖ Faecal Leukocytes
- ❖ Peripheral blood leukocytosis
- ❖ Isolating the bacillus from faeces
- ❖ Stool culture is considered to be the golden standard
- ❖ Rectal swab.

Examination of stools:

Macroscopic examination:

The colour of the faeces is often pink with no foul smell, blood and mucus intimately mixed.

Microscopic examination:

A fresh stool specimen or rectal swab should be promptly inoculated into selective and non-selective media. Isolation of *Shigella* will be substantially reduced with an inappropriate delay in processing. Stool should be plated on MacConkey's xylose-lysine-deoxycholate (XLD), Eosin-methylene blue and Salmonella-Shigella agars.

Colitis due to *Shigella* can be diagnosed presumptively by microscopic examination of stool. A small quantity of stool is placed on a glass microscope slide, to which several drops of methylene blue dye are

added. The sample is then mixed and covered with a glass coverslip. *Shigella* infections produce faecal leukocytes.

Serological tests:

Blood culture should be obtained in patients with bacteremia.

The agglutination test, indirect haemagglutination test, luminescent serum method, the carbon agglomeration test are useful serological tests to diagnose Shigella infection.

Coprology, i.e., microscopic study of faeces for pathological admixtures (mucus, leukocytes, erythrocytes), is widely employed as an auxiliary method. Detection of a considerable number of leukocytes, in particular with an admixture of erythrocytes, has some diagnostic value.

Rectosigmoidoscopy, which often helps to reveal pathological changes in the rectum and sigmoid colon, is of great assistance in the diagnosis of dysentery. It is not recommended in children under a year old, and is contra-indicated in patients with marked signs of an acute intestinal process.

Differential diagnosis:

1. Mild dysentery in infants under 1 year should be differentiated from simple dyspepsia.
2. Intestinal infection caused by pathogenic serological types of group I *Escherichiae.*
3. Salmonellosis.
4. Staphylococcal enterocolitis
5. Amoebiasis

Outcome and prognosis:

The outcome of dysentery depends on a number of factors like the state of the organism's protective forces, the patient's age. The gut mucosal injury heals, and only rarely do abnormalities of intestinal function persist. The disease is aggravated by nutritional disturbances, avitaminosis, concomitant diseases (acute and chronic infections, rickets etc), and helminthiasis, by the presence of bacterial intestinal infections, and by the supervention of complications such as pneumonia, otitis etc.

Correct medical care (careful nursing, timely active therapy and a proper diet) improves prognosis.

Treatment and diet:

The most important conditions for successful treatment of dysentery patients are a properly organized regimen, careful nursing, and suitable diet.

Diet:

The diet sheet is drawn up taking into account the patient's age, state, nutrition, the type of dysentery, and the phase of the disease.

The best for a baby under a year old is mother's milk, either from the breast or expressed. When that is not possible, acidophilous milk (yoghourt) should be prescribed. Older children are kept on a mixed carbohydrate-protein diet. Diet must be such as to leave a minimum of residue in the bowel, and should not contain much fat. The diet must be nutritious, with all essential ingredients (proteins, fats, carbohydrates, salts and vitamins).

Prevention:

- ❖ As bacillary dysentery is exclusively human infection transmitted by faeco-oral route, control consists essentially in improving environmental sanitation. Health education with an emphasis on washing hands with soap after each defaecation is of paramount importance.
- ❖ Improvement in food sanitation practices, effective sewage removal and chlorination of water lessen the prevalence of enteric infection.
- ❖ Sanitary disposal of excreta, washing hands with soap before eating, safe water supply, food hygiene practices like washing raw vegetables and fruits (grapes) before eating them and health education all can help in the prevention of the disease.
- ❖ Breast feeding decreases the risk of symptomatic Shigellosis and lessens its severity in infants who acquire infection despite breast feeding.
- ❖ Enteric isolation for hospitalized and institutionalized patients, recognition and removal of infected children from the day-care setting, strict personal hygiene and antibiotic therapy are mandatory for reducing the secondary attack rate.
- ❖ Control of the reservoiour is done by diagnosing all cases early, detecting all carriers and putting them on effective treatment.

AMOEBIC DYSENTERY:

Synonym:

Amoebiasis, Amoebic colitis

Definition:

The term amoebiasis is used here to denote the disease caused by *Entamoeba histolytica*. This organism, which ordinarily inhabits the lumen of the large intestine, is capable of invading and destroying the bowel wall. The amoeba can spread to the liver as well as to other extraintestinal sites and cause severe disease if not fatal.

Aetiology:

The disease, amoebic dysentery is caused by *E.histolytica*, which is a protozoan that has trophozoite, precyst, cyst and metacyst stages. The cyst is the infectious stage cysts are oval or round, asymmetrical with four nuclear and destroyed easily by most disinfectants and by heating to 55^0C. Ordinarily trophozoites reside, feed and multiply in the lumen of the colon. Cysts are never found in the tissues.

Cysts are usually not found in loose or diarrhoeic stools that contain only trophozoites. In semiformed stools all stages of encystment are encountered; in formed stools, usually only mature cysts are recovered. These relatively resistant bodies can survive in faeces or water upto 48hrs at 25^oC, and for months at O^oC, but die in 5 minutes at 50^oC.

Epidemiology:

Amoebiasis occurs world wide with highest frequency in tropics. The prevalence of the infection varies inversely with degree of sanitation. Poor sanitation is not limited to moist warm regions of the globe. In areas with permafrost, satisfactory drainage is difficult to establish and amoebiasis has been found in Eskimo communities. High infection rates of amoebiasis are often encountered in institutions for the mentally retarded. Certain communities in which there are recent immigrants from highly endemic areas may have a substantially higher incidence.

Amoebiasis is usually more common in adults than in children.

Mode of transmission:

- The cyst of *E.histolytica* is most frequently transmitted by ingesting faecal contaminated food or water or as a result of food contaminated by soiled fingers or other objects that have been in contact with faecal material.
- Food handlers carrying amoebic cyst play a role in spreading the infections. Since cyst survive for over 45 minutes under the finger nails.
- Flies, cockroaches and rodents may mechanically transmit the cysts to food.
- Individuals who have vacationed in tropical and sub-tropical countries where sanitary facilities are scarce have acquired

amoebiasis after drinking local untreated water or eating uncooked vegetables that were fertilized with human faeces

Pathology:

Recent studies have suggested that glycoproteins in normal colonic mucus may block trophozoite adherence and attachment to mucosal enterocytes. In addition, *in vitro* experiments have shown that direct contact between mammalian cells and trophozoites is necessary for mammalian cell lysis.

The caecal area is the most frequently involved anatomic site, and the rectosigmoid the next. However, any or all parts of the colon including the appendix may be involved. Occasionally disease may include the terminal ileum. Initially, there may be only a few points of mucosal invasion with little or no host reaction. Soon a tiny ulcer appears on the surface and leads to a gradually expanding underlying necrotic ulcer, the so-called flask-shaped lesion. As the tissues of the mucosa are progressively destroyed by lytic necrosis, the amoebae continue to multiply in tissues by binary fission. Frequently, multiple microscopic lesions anastomose laterally, and ulcerations, initially confined to the mucosa extend through the muscularis mucosa into the submucosa. Organisms may spread out radially, and secondary sites of invasion may occur at other levels in the colon, especially in the rectosigmoid portion of the bowel. A polymorphonuclear leukocyte inflammatory response by

the host may not be seen until bacterial invasion of the ulcer occurs. Often, the mucosa between ulcers appears normal, although it is not unusual to see a diffusely inflammed mucosa resembling that of a non-specific ulcerative colitis. Occasionally, the pathologic process extends through the serosa and leads to perforation.

Amoebomas occur most frequently in the caecum, although they have been reported in all parts of the colon. The basic lesion is granulomatous thickening of the colon as a result of lytic necrosis followed by secondary pyogenic inflammation leading to fibrosis, proliferative granulation tissue and focal abscesses. The lesion may be well localized or the colonic wall may be extensively involved.

Hepatic lesions are caused by *E. histolytica* that reach the liver after invading blood vessels of the intestinal wall and initiate lytic destruction of the hepatic parenchyma with abscess formation.

Incubation period:

Varies from about 4 days to possibly years, and is usually about 3 weeks to 4 months.

Clinical manifestations:

More than one half of people infected with *E.histolytica* are without symptoms, few have severe disease, but many have mild to moderate complaints. Asymptomatic individuals are referred to as carriers or “Cyst passers”.

Severe diseases may be characterized by the sudden onset of frequent copious diarrhoea usually containing mucus and blood, but more often the symptoms develop gradually with irregular bouts of diarrhoea, abdominal pain, nausea and loss of appetite. Tenesmus is frequently reported associated with the evacuation of only one or two drops of bright erythrocyte-stained mucus; under the microscope, the mucus usually reveals large numbers of erythrophagous trophozoites. Low-grade fever and leukocytosis are present in about one half of the patients. If the febrile reaction is marked or there is a considerable polymorphonucleocytosis, an amoebic liver abscess should be considered. In severe intestinal disease, palpation of the abdominal wall will reveal exquisite tenderness along the portion of the involved large bowel. Sigmoidoscopy often reveals discrete ulcers that vary in size from a pinhead to large coalesced lesions with overhanging necrotic edges. When ulcers are still discrete, the intervening mucosa is often normal, but occasionally a diffuse inflammed, friable mucosa, indistinguishable from that of idiopathic ulcerative colitis, is encountered. Evidence of ulceration can sometimes be discerned and 3% to 5% of patients have a localized tumor-like lesion, an amoeboma, particularly in the caecum. It is often misread as carcinoma of the colon.

Most patients with clinical disease have mild to moderate symptoms. They often complain of recurrent bouts of mild diarrhoea

alternating with periods of constipation. The stools will be streaked with blood-tinged mucus. Ill-defined abdominal pain or abdominal distension may be the only complaint, although there may be fatigue, low-grade fever and backache. Physical examination may reveal mild to severe tenderness in the right lower quadrant of abdomen on deep palpation.

In children, severe amoebiasis may present as an acute febrile illness with bloody diarrhoea, or mild disease may occur as abdominal pain with infrequent bouts of diarrhoea, poor appetite, pallor, occasional mild fever, and failure to thrive. In infants, amoebiasis has presented as fatal toxic dilatation of the colon. The liver is often palpable and tender although an abscess may not be present.

In mild disease, sigmoidoscopy is often unrewarding. Blood count, sedimentation rate, and liver function tests are normal. Patients with an amoeboma, however, may have peripheral eosinophilia.

Complications:

The common complications of amoebic dysentery are massive haemorrhage, perforation and peritonitis, toxic megacolon in fulminant cases, post-dysenteric colitis, hepatic amoebiasis, pleuropulmonary amoebiasis, amoebic pericarditis, cerebral abscess, and cutaneous amoebiasis.

Diagnosis:

Clinical manifestations of intestinal amoebiasis are not diagnostic.

Essentials of diagnosis:

- ❖ Diarrhoea with blood and mucus.
- ❖ Evidence of colitis.
- ❖ Pain and tenderness.
- ❖ Detecting the organism in stool samples for trophozoites and cyst.
- ❖ Sigmoidoscopy.
- ❖ Endoscopy and biopsy when stool samples are negative.
- ❖ Indirect haemagglutination test.

Even in those patients with typical ulcers seen by sigmoidoscopy, diagnosis should be confirmed by identifying parasites in stool or from scrapings obtained from an ulcer because lesions are not pathognomonic. Identifying amoebae requires considerable experience. Polymorphonuclear leukocytes, stool macrophages and nonpathogenic amoebae are frequently misinterpreted as *E.histolytica.*

Examination of stools:

Stool examination is most useful when a series of three specimens is collected on alternate days. Stool samples should be placed promptly in preservative [Polyvinyl alcohol (PVA), Merthiolate-iodine-formalin (MIF)].

Freshly passed unpreserved liquid stools should be examined promptly, within 20 to 30 minutes, because they usually contain trophozoites that are labile and degenerate quickly; if they cannot be examined almost immediately, they should be preserved. Cysts present in

formed stools are less labile and can often be recognized even after 24 hours if the specimen is placed in the refrigerator.

Intestinal roentgenographic examinations that use barium often make stool examinations for amoebae unsatisfactory for a week or more. Examination of atleast three stool specimens with direct, concentration, and staining techniques (Annexture V) raises the probability of diagnosis to more than 90% of those infected. The finding of cysts, however, should not be interpreted to mean non invasive disease or a “carrier state”. Cysts as well as trophozoites are diagnostic of infection. Culture and serologic methods done by a skilled laboratory may further increase the diagnostic yield.

Liver abscess is usually diagnosed by the outcome of serologic, radiologic, radioisotope and ultrasound studies. Diagnostic aspiration under CT or ultrasound guidance may yield the typical red-brown “anchovy paste” material, although the aspirate is more often yellow or grey-green. Typically, the aspirate is sterile, i.e., no bacteria and no odour. This finding should strongly suggest an amoebic aetiology of the abscess.

Serological Test:

Serologic methods can be most helpful in diagnosing amoebiasis. In patients with extraintestinal disease, the indirect haemagglutination (IHA) test is highly sensitive and has great specificity. In acute amoebic

dysentery, sensitivity is diminished and least sensitivity is found in asymptomatic or carrier states. The gel diffusion and indirect fluorescent antibody (IFA) techniques are also very useful. The IFA technique appears to be as sensitive as the IHA but with less specificity. The recently developed enzyme-linked immunosorbent assay (ELISA) test that detects amoebic antigen in stools may prove to be highly specific and sensitive for detecting this infection.

Differential diagnosis:

Amoebic dysentery should be differentiated from diarrhoea, bacillary dysentery, ulcerative colitis, tuberculous enteritis, Crohn's disease and sprue.

Prognosis:

With the early detection, good treatment and maintanence of personal hygiene, the prognosis is very good. The prognosis is less favourable in the case of ruptured liver abscesses and brain abscesses (this is rare in adults and children).

Prevention:

- Because infection is most often acquired as a result of drinking contaminated water or from eating fresh fruits and vegetables fertilized with human faeces, proper environmental sanitation is needed.
- Food handlers should be checked and those found harboring the

infection should be treated.

- ❖ Composting human faeces, used for fertilizer, for a sufficient period would kill the cysts of E.histolytica.
- ❖ All drinking water in unsafe communities should be boiled or treated with Globaline tablets that contain 20mg tetra-glycine hydroperiodide, 90mg sodium hydropyrophosphate, and 5mg talc. This includes water used for brushing teeth.
- ❖ Ice should be made from boiled or treated water.
- ❖ Food should be protected from flies.
- ❖ Fresh vegetables and fruits should be washed with Globaline-treated water or blanched at 80^{o} to 85^{o}C for 30 to 45 seconds.
- ❖ Proper sanitary disposal of human excreta, maintaining good personal hygiene like hand washing with soap after defaecation is effective in prevention of disease.

Diagnostic signs and symptoms of amoebic dysentery and bacillary dysentery:

Sl.No	Features	Amoebic Dysentery	Bacillary dysentery
1.	Epidemiology	Chronically endemic (Occasionally epidemic).	Acute epidemic disease (Occasionally endemic).
2.	Incubation period	Variable.	A week or less.
3.	Onset	Often insidious, poor health prior to attack.	Often acute, even explosive or hyperacute, good health prior to attack.
4.	Age	Rare in children (But becoming frequent).	Common in children.
5.	Course	Chronic and prone to remissions and exacerbation.	Acute (Few days).
6.	Symptoms and signs	Tenesmus not so marked, thickening of colon, ascending and transverse colon.	Severe tenesmus due to rectum being involve frequently. No thickening of colon.
7.	Dehydration, prostration	Not marked.	Well marked.
8.	Complications and outcome.	Liver abscess or hepatitis surgical amoebiasis including perforation. Fatal outcome due to exhaustion, liver abscess or intestinal haemorrhage.	Due to exhaustion, dehydration and toxemia.

Characteristic features of the stools of amoebic dysentery and bacillary dysentery patients.

Feature	Amoebic dysentery	Bacillary dysentery
Macroscopic		
❖ Frequency	6-8 motions a day	Over 10 motions a day
❖ Amount	Relatively copious	Relatively small
❖ Odour	Offensive	Odourless
❖ Nature	Blood and mucus mixed with faeces	Blood and mucus, no faeces
❖ Colour	Dark red	Bright red
❖ Reaction	Acidic	Alkaline
❖ Consistency	Not adherent to the container	Adherent to the container
Microscopic		
❖ RBC	In clumps	Discrete or in rouleaux
❖ Pus cells	Scanty	Numerous
❖ Macrophages	Very few	Large and numerous
❖ Eosinophils	Present	Scarce
❖ Parasites	Trophozoites of *E.histolytica*	Nil
❖ Bacteria	Nil	Motile bacteria
❖ Charcot leyden crystals	Present	Absent

MATERIALS AND METHODS

To find the efficacy of Madhulam Pinju Choornam, the following studies were carried out in the present investigation.

I. Collection, Identification and confirmation of the raw drugs, for the preparation of Madhulam Pinju Choornam.

II. Purification and processing of raw drugs.

III. Preparation of trial drug.

IV. Biochemical analysis of trial drug.

V. Pharmacological studies of trial drug.

VI. Antimicrobial studies of trial drug.

VII. Clinical trials

The clinical study on seetha kazhichal was carried out in the out-patient and in-patient department (postgraduate) of kuzhanthai maruthuvam at government siddha medical college palayamkottai.

Selection of cases

Twenty one cases of both sexes 11 male and 10 female in the age group between 2 years to twelve years were selected from the out patient department and admitted in the post-graduate kuzhanthai maruthuvam ward. The diagnosis was confirmed by clinical and laboratory criteria.

Study of siddha clinical diagnosis

The following siddha methods of diagnosis were employed: poriyalarithal, pulanaalarithal, mukkutra nilai, ezhu udal thathukkal, envagai thervugal, neerkuri, neikuri etc.

Evaluation of clinical parameters:

During admission the patients had passage of loose stools frequently. The loose stools were often mixed with blood and mucus and associated with lower abdominal pain and tenesmus.

Patients having signs of severe dehydration and in need of emergency care were excluded from this study.

Clinical investigations:

Stools examination:

Stools were examined macroscopically for Niram(colour), Nurai(froth), Erugal(solid), Elgal(semisolid or liquid) and microscopically for ova, cyst, trophozoites of entamoeba histolytica, occultblood, culture for shigella sp etc.

Routine blood and urine examinations were done for all cases.

Case proforma:

All clinical signs and symptoms of seetha kazhichal, history of present and past illness, personal history, nutritional history, family history, immunizational history, laboratory investigations and

management methods were systemically recorded in a proforma for analysis.

Administration of trial medicine:

The trial medicine used in the study is "**Madhulam Pinju chooranam**". Preparation and properties, biochemical analysis, pharmacological studies and antimicrobial activity of the drug are dealt in detail in annexures.

OBSERVATIONS AND RESULTS

Results were observed according to the following criteria:

I. Biochemical analysis

II. Pharmacological studies

III. Antimicrobial studies

IV. Clinical trial

1. ParuvaKaalam
2. Age
3. Sex
4. Religion
5. Mukkutra Kaalam
6. Socio economic status
7. Diet
8. Aetiological factors
9. Clinical presentation
10. Ezhu Udal Kattukal
11. Envagai thervukal
12. Neikuri and Urine analysis
13. Haematological profile.
14. Microscopic examination of stool and culture
15. Efficacy of drug
16. Inpatient case report

I. Biochemical analysis:

The Biochemical analysis of Madhulam pinju Choornam prove that it has aminoacids, tannic acid, unsaturated compounds and ferrous iron.

II. Pharmacological analysis:

In the Pharmacological studies, the trial drug has antispasmodic, antidiarrhoeal, acute and chronic anti-inflammatory, antipyretic and styptic effects.

III. Anti microbial study:

The results in the present study prove that the Madhulam pinju Choornam has significant antimicrobial activities against Shilgella flexneri E-coli, Salmonella typhi and Staphylococci common intestinal pathogen, responsible for diarrhoeal disorders.

IV. Clinical Trials

1. Distritution of patients according to Paruva Kaalam

The admission sheets of 21 inpatients reveal that 8, 2, and 11 patients were admitted in Kaar kaalam, Elavenil kaalam and Muthuvenil Kaalam respectively.

Table 1. Shows the distribution according to paruvakaalam.

Sl. No.	Paruva Kaalam	Month	No. of IP cases, (out of 21)	Precentage (%)
1.	Kaar Kaalam	Aavani and Purattasi (Aug 16th to Oct 15th)	8	38.1
2.	Koothir Kaalam	Iyppasi and Karthigai (Oct 16th to Dec 15th)	-	-
3.	Munpani Kaalam	Markazhi and Thai (Dec 16th to Feb 15th)	-	-
4.	Pinpani Kaalam	Maasi and Panguni (Feb 16th to Apr 15th)	-	-
5.	Elavenil Kaalam	Chithirai and Vaigasi (Apr 16th to Jun 15th)	2	9.5
6.	Muthuvenil Kaalam	Aani and Aadi (Jun 16th to Aug 15th)	11	52.4

2. Distribution of patients according to age:

The informations, obtained from patients or informants regarding 21 inpatients show that one patient in each of mutha paruvam and varugai paruvam,3 patients in ambuli paruvam, 2 patients in siruparai paruvam, 4 patients in pethai/pillai paruvam and 10 patients in pethumbai/siruparuvam,

Table 2. Shows the distribution of the patients according to age.

Sl.No.	Age and Paruvam	No. of IP cases (out of 21)	Percentage (%)
1.	1-6 Months - Kaappu Paruvam	NIL	-
2.	6-12 Months - Senkeerai Paruvam	NIL	-
3.	1-11/2 Years - Thalattu Paruvam	NIL	-
4.	11/2 -2 Years - Sappani Paruvam	NIL	-
5.	2-21/2 Years - Mutha Paruvam	1	4.8
6.	21/2 - 3 Years - Varukai Paruvam	1	4.8
7.	3 - 31/2 Years - Ambuli Paruvam	3	14.3
8.	31/2 - 4 Years - Chitril Paruvam	NIL	-
9.	4 - 41/2 Years - Siruparai Paruvam	2	9.5
10.	41/2 - 5 Years - Siruthaer Paruvam	NIL	-
11.	5-6 Years - Pethai (female) /Pillai (Male) Paruvam	4	19.0
12.	6-12 Years – Pethumbai Paruvam (female) /Siruparuvam (male)	10	47.6

3. Distribution according to the sex:

Among 21 inpatients, 11 were male and 10 were female children

Table 3. Shows the distribution of patients according to sex.

Sl. No	Sex	No. of IP cases (out of 21)	Percentage (%)
1.	Male	11	52.4
2.	Female	10	47.6

4. Distribution according to the religion:

On the basis of religion, 18 patients were Hindus and 3 were Christians among 21 inpatients.

Table 4. Shows the distribution of patients according to religion.

Sl. No	Religion	No.of IP cases (out of 21)	Percentage (%)
1.	Hindu	18	85.7
2.	Christian	3	14.3
3.	Muslim	NIL	-

5. Distribution according to the Thinai:

Regarding the distribution of patients on the basis of Thinai, since Tirunelveli town and surrounding villages belong to Marutham, 20 patients out of 21 inpatients belong to Marutham and 1 patient belong to Neithal which is a nearby district (Tuticorin district).

Table 5. Shows the distribution of patients according to Thinai.

Sl.No	Thinai	No. of IP cases (out of 21)	Percentage (%)
1.	Kurinji (Hill)	NIL	-
2.	Mullai (Forest)	NIL	-
3.	Marutham (Fertile)	20	95.2
4.	Neithal (Coastal)	1	4.8
5.	Palai (Desert)	NIL	-

6. Distribution according to the Mukkuttra Kaalam:

When Mukkuttra Kaalam is considered all the inpatients taken for the present study were children and so they belonged to Vaatha Kaalam only.

7. Distribution according to the Informants:

The informations and details about the history, signs and symptoms of the disease for 21 patients were given by two patients themselves, 17 mother of patients, 1 father of patient and 1 grand parent of patient.

Table 5. Shows the informants and reliability of information

Sl.No.	Informant	No.of IP Cases (out of 21)	Percentage (%)	Reliability
1.	Patient himself/herself	2	9.5	Most reliable
2.	Mother	17	80.9	Best reliability
3.	Father	1	4.8	Good reliability

4.	Grand parent	1	4.8	Very fair reliability
5.	Relative/ friend	NIL	-	Fair reliability
6.	Others	NIL	-	Poor reliability

9. Distribution of patients according to the Socio economic status:

When the socioeconomic status of the patients were analysed, it is found that 15inpatients were from poor families and 6 were from middle class families.

Table 9. Shows the distribution according to their socio economic Status.

S.l.No	Socio economic status	No. of IP cases (out of 21	Percentage (%)
1.	Poor	15	71.4
2.	Middle class	6	28.6
3.	Rich	NIL	-

10. Distribution according to the diet habits:

Regarding the diet habits of inpatients, duration of breast feeding they enjoyed, present food habits and water resources for their drinking water were analysed.

10a. Distribution according to the food habits:

As far as present diet habits are concerned, all patients were having the habit of eating both vegetarian and non-vegetarian diets. So all (100%) are coming under mixed diet habits

Table 10a. Shows the distribution according to food habits.

Sl.No	Food Habits	No. of IP cases (out of 21	Percentage (%)
1.	Vegetarian	NIL	-
2.	Mixed	21	100%

10b. Distribution according to the drinking water sources:

Water source to obtain drinking water is also an important factor for health care. In the present study 4 patients had well water, nine had tap water, five had bore well water and three got water from either pond or river for drinking purpose.

Table 10b. Shows the distribution on the basis of water sources.

Sl.No.	Water sources	No.of IP cases (out of 21)	Percentage (%)
1.	Well	4	19.0
2.	Tap water	9	42.9
3.	Bore well	5	23.8
4.	Pond/River	3	14.3

11. Distribution according to cases within the same families:

Among 21 inpatients, 5 patients (23.8%) belonged to two families, ie., three from one family and two from another family and others (76.2%) were from different families.

Table 11. Shows the incidene within the same family.

Sl. No	Cases	No. of IP cases (out of 21	Percentage (%)
1.	Within same family	5	23.8
2.	Others	16	76.2

12. Distribution according to aetiological factors:

From the informations gathered, the aetiological factors for 21 patients are inferred that one patient was infected due to bottle feeding of all liquids, five patients through impure drinking water, three due to intake of excessive pungent and sour tasted food; eight through contaminated food and four due to lack of personal hygiene.

Table 12. Shows the distribution according to the aetiological factor.

Sl.No	Aetiological factor	No.of IP cases (out of 21)	Percentage (%)
1.	Bottle feeding	1	4.8
2.	Drinking impure water	5	23.81
3.	Intake of excessive pungent and sour tasted food.	3	14.3
4.	Intake of contaminated food items.	8	38.1
5.	Lack of personal hygiene	4	19.0

13. Distribution according to the duration of illness:

Regarding the history of disease, it is understood that four patients had the complaint for two days, 12 patients for three days and 5 for four days.

Table 13. Shows the duration of illness of the patients.

Sl.No	Duration of illness	No. of IP cases (out of 21)	Percentage (%)
1.	1 day	NIL	-
2.	2 days	4	19.0
3.	3 days	12	57.2
4.	4 days	5	23.8

14. Distribution according to the Clinical Presentations:

The facts about the clinical presentations were gathered from patients or informants as well as by the diagnostic methods such as Poriyaal arithal Pulanaal arithal and Vinaathal usually followed in Siddha system of Medicine.

Table 14. Shows the Clinical Presentations (Signs and symptoms)

Sl.No	Signs and Symptoms	No. of IP cases (out of 21)	Percentage (%)
1.	Passing bright red scanty loose stools with mucus and blood.	18	85.7
2.	Passing dark brown scanty loose stools or semisolid stools with mucus and blood.	3	14.3
3.	Flatulence	17	80.9
4.	Raised body temperature	15	71.4
5.	Tenderness over caecal region and ascending colon.	3	14.3
6.	Tenderness over transverse colon	4	19.0
7.	Tenderness over descending colon	10	47.6
8.	Tenderness over both descending and transverse colon	4	19.0
9.	Tenderness and enlargement of liver	NIL	-
10.	Indigestion.	21	100
11.	Abdominal discomfort	21	100
12.	Abdominal pain	21	100
13.	Rectal tenesmus	19	90.5
14.	Post prandial evacuation of bowels.	12	57.2
15.	Nausea and vomiting	4	19.0
16.	Incessant cry	1	4.8

Distribution according to mukkutra nilai :

Analyses of the factors of the clinical presentation show symptoms due to derangement of Vaatham, Pitham and Kabam. The observations, regarding Uyir thathukkal (Mukkuttram) show that all inpatients (100%) show symptoms due to derangement of Abaanan, Viyaanan, Samaanan and Kirukaran in Vaatham.

15. Distribution according to Mukkuttra nilai:

Table 15. Shows the distribution according to Uyir thathukkal.

Sl.No	Uyir thathukkal (Mukkuttram)	No of IP cases (out of 21)	Percentage (%)
	Vaatham		
1.	Piraanan	NIL	-
2.	Abaanan	21	100
3.	Viyaanan	21	100
4.	Uthaanan	4	19.0
5.	Samaanan	21	100
6.	Naagan	NIL	-
7.	Koorman	NIL	-
8.	Kirukaran	21	100
9.	Devathaththan	NIL	-
10.	Dhananjeyan	-	-
	Pitham		
1.	Analam (Paasagam)	21	100
2.	Ranjakam	6	28.6
3.	Saathakam	NIL	-
4.	Piraasakam	5	23.8

5.	Aalosakam	NIL	-
	Kabam		
1.	Avalambakam	21	100
2.	Kilethakam	21	100
3.	Pothakam	Nil	-
4.	Tharpakam	12	57.1
5.	Santhikam	NIL	-

16. Distribution according to Ezhu Udal kattukal (Udal thathukkal):

Based on Ezhu Udal Kattukal, the distribution of inpatients shows that all patients (100%) had affected Saaram and Chenneer

Table 16. Shows the distribution according to the Udal kattukal.

S.l.No	Udal kattukal	No. of IP cases (out of 21)	Percentage (%)
1.	Saaram	21	100
2.	Chenneer	21	100
3.	Oon	NIL	-
4.	Kozhuppu	NIL	-
5.	Enbu	NIL	-
6.	Moolai	NIL	-
7.	Sukkilam /Suronitham	Not applicable	-

17. Distribution according to Envagai thervukal:

Table 17. Shows the Envagai thervukal of patients.

Sl.No	Envagai thervukal	Inference	No. of IP cases (out of 21)	Percentage (%)
1.	Naa	✶ Coated and slightly dry tongue	6	28.6
		✶ Ulcer in the tongue	2	9.5
2.	Niram	✶ Pallor of the skin	5	23.8
3.	Mozhi	✶ Blurred voice or low pitched voice	NIL	-
4.	Vizhi	✶ Pallor of the conjunctiva	18	85.7
5.	Sparism	✶ Raised body temperature	15	71.4
		✶ Abdominal pain and tenderness	21	100
6.	Malam	✶ Bright red loose scanty stools with blood and mucus and frequency of motion 5-12 times per day	18	85.7
		✶ Dark brown semisolid stools with blood and mucus with offensive smell and frequency of motion 3-8 times per day	3	14.3

7.	Moothiram	✶ Burning micturition	2	9.5
		✶ Slightly yellow colour urine	5	23.8
		✶ Normal urine	16	76.2
8.	Naadi	✶ Pitha Vaatham	11	52.4
		✶ Vaatha Pitham	9	42.8
		✶ Kaba Vaatham	1	4.8

18. Distribution according to Neikuri examination:

Neikuri examination of urine of 21 patients shows the following.

Table 18. Shows the Neikuri inference of urine.

Sl. No.	Character of Urine	Neikuri inference	No.of IP cases (out of 21)	Percentage (%)
1.	Spreading like snake	Vaatha neer	7	33.4
2.	Spreading like ring	Pitha neer	12	57.1
3.	Appearing like pearl	Kaba neer	2	9.5

19. Distribution according to Haematological profile:

Examinations regarding Haematological profile were done, to estimate Haemoglobin content, ESR/ hr and Total count and Differential count of Leukocyte.

19. a. Distribution according to Haemoglobin content:

Table 19a. Shows the Haemoglobin content of patients

Sl. No	Haemoglobin (%)	No. of IP cases (out of 21)	Percentage (%)
1.	Less than 60	1	4.8
2.	61 to 65	8	38.0
3.	66 to 70	11	52.4
4.	Above 70	1	4.8

19. b. Distribution according to Erythrocyte Sedimentation Rate:

The examination of Erythrocyte Sedimentation Rate (ESR/hr), showed that in 1 patient ESR/hr was between 1 and 7 mm; in 12 patients between 7 and 14mm; in 7 patients between 14 and 21mm and in 1 patient between 21 and 28.

Table 19b. Shows the erythrocyte sedimentation rate (ESR/ hour).

Sl. No	ESR/hour	No. of IP cases (out of 21)	Percentage (%)
1.	1 – 7 mm	1	4.8
2.	7 – 14 mm	12	57.1
3.	14 – 21 mm	7	33.3
4.	21- 28 mm	1	4.8

19. c. Distribution according to the Total Count of Leukocyte/cu.mm:

The record of the total count (TC) of leukocytes (WBC) in inpatients shows that 1 patients (4.8%) had the WBC count between

4000 and 6000/cu.mm; 6 patients (28.5%) between 6000 and 8000/cu. mm; and 14 patients (66.7%) had between 8000 and 10000/cu. mm;.

Table 19c. Shows the Total Count of Leukocyte /cu.mm.

Sl. No	Total leukocytes/cu.mm	No. of IP cases (out of 21)	Percentage (%)
1.	4000 - 6000	1	4.8
2.	6000 - 8000	6	28.5
3.	8000 – 10,000	14	66.7
4.	10.000 – 12,000	NIL	-

20. Distribution according to results of urine analysis:

The results of urine analysis showed that in all patients the albumin, sugar and deposits were found to be absent in urine, showing that all were excreting normal urine.

Table 20. Shows the results of urine analysis of patients.

Sl. No.	Urine analysis for	Positive (out of 21)	Percentage (%)	Negative (out of 21)	Percentage (%)
1.	Albumin	NIL	-	21	100
2.	Sugar	NIL	-	21	100
3.	Deposits	NIL	-	21	100

21. Microscopic examination of stool and culture for *Shigella* sp and *E.histolytica:*

The results regarding microscopic examination of stool and culture for *Shigella* sp and *E.histolytica* before and after treatment for 21 inpatients have been given in table 22 From this table, it is clear that 18 patients were suffering from *Shigella* invasion causing bacillary dysentery and three were suffering from amoebic dysentery due to invasion of *E.histolytica*.

22. Efficacy of drug:

From all the above observations and results it is clear that in 20 patients (95.45%) the Madhulam pinju Choornam has produced good effect in treating Seethakazhichal to get complete cure.

Table 24. Shows the clinical results of Madhulam pinju Choornam.

Sl.No	Clinical results of Madhulam Pinju Chooranam	No of IP cases (out of 21)	Percentage (%)
1.	Good	20	95.2
2.	Fair /Moderate	1	4.8
3.	Poor	NIL	-

However in one patient (4.8%), it has moderate effect and full cure has been noticed after fortnight of treatment. So for this case, it is considered that Madhulam pinju Choornam has shown moderate effect.

DISCUSSION

From the review of literatures of Siddha and Modern systems of Medicine, it is clear that the disease Seethakazhichal is caused due to Microorganisms, especially *Shigella* sp. of bacteria and protozoan parasite *Entamoeba histolytica*. When searching for a suitable Siddha Medicine, the properties of Madhulam pinju, Kungiliyam, Yelakkai, gashagasha found to be suitable as principle constituents (Vide Annexure I).

According to Nadkarni, Yoganarasimhan and Chopra, the Madhulam pinju (unripe fruit) can be used for advanced stages of dysentery, diarrhoea, infantile diarrhoea, antiviral activity, intestinal parasites, flatulence and dyspepsia. Kungiliyam can be used in bacillary dysentery, chronic amoebic dysentery and diarrhoea. Yelakkai can be used to control nausea and flatulency. The mucilage present in the Yelakkai protects the injured mucosa and has a healing action on intestinal ulcers. It has a remarkable power of absorbing bacterial and other toxins and gashagasha has antispasmodic activity. Further Madhulam pinju and yelakkai can be used during convalescence after chronic dysentery and diarrhea. The 4 principle constituents of the present Trial Drug, Madhulam pinju Choornam, can be mainly used to treat bacillary dysentery, acute and chronic amoebic dysentery, diarrhoea and other intestinal invaders. Hence they are selected as principle ingredients.

Before taking the Madhulam pinju Choornam to patients suffering from Seethakazhichal, it is tested for its biochemical, pharmacological and antimicrobial properties.

I. Biochemical Analysis:

The results of Biochemical analysis of Madhulam pinju Choornam show that it consists of tannic acid, unsaturated compounds, starch, aminoacids and ferrous iron. The contain vitamins such as VitaminB-complex (Thiamine, Riboflavin, Niacin) and C. (Wealth of India)

Regarding the properties, tannic acid is an efficient astringent that will precipitate superficial proteins in the gastrointestinal tracts in the form of protein tannate and form a protective layer. This protective layer helps to get rid of any irritations in the intestinal tract by which the spasmodic effect of the intestine can be reduced. So tannic acid can create antispasmodic and antidiarrhoeal effects. Further, presence of various vitamins and amino acids may assist and accelerate the healing process of ulceration and inflammation in the wall of the gastrointestinal tract.

The presence of ferrous iron in Madhulam pinju Choornam may help in haemoglobin synthesis in mild or acute anaemic patients, caused due to blood loss along with faeces in Seethakazhichal.

II. Pharmacological Studies:

1. Antispasmodic and Antidiarrhoeal effects:

The study of pharmacological effect of Madhulam pinju Choornam proves that it has antispasmodic and antidiarrhoeal effects. According to Ambasta, Nadkarni regarding the action of Madhulam pinju, Kungiliyam, Gasha gasha it is stated that they are acting as astringents and forms protective layer. Moreover Madhulam pinju has pectin also. The pectin is a good protective and adsorbent. Because of this action, the trial drug may have the antispasmodic and antidiarrhoeal effects.

2. Anti-inflammatory effect:

The analysis of acute and chronic anti-inflammatory action of Madhulam pinju Choornam on albino rats, showed significant anti-inflammatory actions.

Hence the treatment of Seethakazhichal with Madhulam pinju Choornam may avoid inflammation in the wall of gastrointestinal tract caused due to bacterial or amoebic infections. Hence this may avoid pain, discomfort, tenesmus, irritation and tenderness in gastrointestinal tract.

3. Antipyretic effect:

The study of the antipyretic effect of Madhulam pinju Choornam showed significant action in controlling yeast induced fever in albino rats. Seethakazhichal patients sometimes may have increased body temperature and fever. Since the Madhulam pinju Choornam has

significant antipyretic effect, this may control and relieve the fever and pain in Seethakazhichal patients.

4. Styptic effect:

The styptic effect of Madhulam pinju Choornam shows that the clotting time of blood or bleeding time is reduced in experimental animals, thus prevent blood loss. This effect has been described as one of the properties of Madhulam pinju chooranam by which the blood gradually disappears and the stools assume a more foeculent and solid form.

III. Antimicrobial studies:

The study of antimicrobial activities of Madhulam pinju Choornam against six common species of intestinal invaders, namely *E.coli*, *Klebsiella* sp., *S.dysenteriae*, *S.typhi*, *Proteus* and *S.aureus*, prove that the trial drug has significant inhibitory actions against target organisms.

Hence most of the gastroenteritis may be controlled by Madhulam pinju Choornam.

IV. Clinical Trial:

1. Incidence according to Paruvakaalam:

When the clinical trial of Madhulam pinju Choornam was performed more than 75 out patients and 21 inpatients with Seethakazhichal were treated with this trial drug during the period of

March 2008 to Dec 2008. Among the experimental period, however the muthuvenil kaalam shows the period for the out burst of this disease. This observation supports the opinion of Nosov who explains that during this period the multiplication and probagation of Seethakazhichal causing microorganisms are more.

2. Incidence according to Age:

Regarding the age distribution, the literature shows that in the occurrence is more in the age group of 1 to 4 years. Then it becomes moderate in later childhood. In the present study both in the outpatient ward and inpatient ward the occurrence of Seethakazhichal was noticed among the age group of 6 to 12 years and moderate occurrence of 32.8% was noticed between the age of 3 and 6 years. This does not mean that the occurrence is more common in children belonging to age group of 6 to 12 years. One of the reasons for this may be that the parents of children between the age of 1 and 3 preferred to care their children by keeping them in their home, rather than admitting them in the hospital. On the other hand parents of children between the age of 6 and 12 showed their willingness to admit their children in the hospital to treat them under the care of doctor and hospital staff.

3. Incidence according to Sex:

On the basis of the sex, the disease Seethakazhichal affects both male and female children more or less equally Hence there is no sex

predilection for Seethakazhichal. This observation is similar to the description given by Grossman.

4. Incidence according to Religion:

Regarding the distribution of this disease on the basis of religion of the patients, 85.7% were Hindus and 14.3% were Christians. However, in and around Tirunelveli the Hindu population out numbers the population of other religions. So on the basis of this data, one cannot predict the occurrence of the Seethakazhichal on the basis of religion.

5. Incidence according to Thinai:

Similarly the distribution of patients on the basis of thinai, shows that 95.2% patients belong to Marutham and 4.8% from Neithal. Since In Siddha literature, Marutha Nilam is considered as a disease free zone. However the changing life style, dietary habits from their ancestor and environment may also be one of the reasons for this occurrence. Further the high temperature in Palayamkottai and its surrounding areas may be responsible for increasing pitham and may result in increased occurrence of Seethakazhichal.

6. Incidence according to Mukkuttra Kaalam:

Since the present study is restricted to children below the age of 12, all the patients belong to Vaatha kaalam only. So in the present study, it is inferred that in children Seethakazhichal is a Pitha disease occurring in Vaathakaalam.

7. Incidence according to Informants:

In the present study 80.9% informants were mothers, 4.8% were fathers and 9.5 % were patients themselves. So the reliability of informations was more than good.

8. Incidence according to Socioeconomic Status:

Common environmental reasons for disease are poor ventilation, over crowding, poor sanitary habits, lack of personal hygiene etc. These factors are mainly depend on the occupation and socioeconomic status of the patients. Regarding socioeconomic status of patients, 71.4 % were from poor families and 28.6 % were from middle class families. Hence this observation supports the view that occurrence and spreading of Seethakazhichal may be patially due to poor sanitation and personal hygiene.

9. Diet:

Regarding diet, the consumption of Non-vegetarian diet, indigestible or half cooked diet, faecal contaminated food and rotten fruits and vegetables may cause Seethakazhichal. In the present study, it is noticed that all inpatients had mixed food habits, consuming both vegetarian and non-vegetarian diets.

10. Incidence according to cases from the same families:

In two occasions three children from one family and two children from another family were affected by Seethakazhichal and admitted in the

hospital. The informations obtained and recorded for these 5 patients showed that the sources of infection were only through contaminated food.

11. Incidence according to the duration of Illness:

Further it is also due to lack of awareness about the disease, the affected patients were not brought to the hospital immediately. Among inpatients, 23.8% patients had 4 days illness, 57.2 % had 3 days illness and only 19 % had 2 days illness. So they need atleast 3 to 10 days treatment both as inpatient and then as outpatients.

12. Incidence according to Clinical Presentations:

As per the Siddha system of Medicine, the signs and symptoms or clinical presentations of patients were collected by Poriyaal arithal, Pulanaal arithal and Vinaathal.

According to literature the red scanty loose stools with mucus and blood is a symptom of bacillary dysentery and dark brown scanty loose stools or semisolid stools with mucus and blood is a symptom of amoebic dysentery. This helps the author to diagnose that 85.7% were affected by bacillary dysentery and 14.3% were affected by amoebic dysentery.

By Pulanaal arithal, the flatulence (80.9%) and raised body temperature (71.4%) indicated the secondary symptoms of possible Seethakazhichal.Further, more patients had tenderness over descending colon, that indicates the common site of infection is descending colon.

This observation coincides with the description given in literature. However tenderness and enlargement of liver was not observed in any patients. That shows that no one had chronic amoebic dysentery.

By Vinaathal, it was understood that all patients had indigestion, abdominal discomfort, abdominal pain and rectal tenesmus, which are typical symptoms of Seethakazhichal as described in literature. In 57.2 %; 19 % and 4.8 % of patients, post prandial evacuation of bowels, Nausea and vomiting and incessant cry were observed respectively.

13. Incidence according to Uyir thathukkal (Mukkuttram):

In the present investigation, Seethakazhichal affects Abaanan, Viyaanan, Samaanan and Kirukaran under vaatham in all patients which produced loose stools, rectal tenesmus, indigestion, abdominal discomfort etc. Uthanan was deranged in 19 % of patients that produced poor appetite, nausea and vomiting. All patients had derangement of Analam (Paasagam) under pitham that produced loose stools with blood and mucus. Derangement of Ranjakam (in28.6%) and Piraasakam (23.8%) caused pallor of the skin and derangement of Avalambakam and Kilethakam under kabam in all patients produced loose stools with mucus and indigestion. Because 57.1% patients showed derangement of Tharpakam of Kabam, it caused abdominal discomfort and pain.

14. Incidence according to Ezhu udalkattukal:

In the present study, it was found that two of the seven udal kattukal namely Saaram and chenneer were deranged in all 21 inpatients.

15. Incidence according to Envagai thervukal:

In the present study, 85.7% of patients showed pallor of the conjunctiva; and 71.4 % showed fever, but invariably all patients had the complaint of abdominal pain and tenderness of different regions of large intestine. Analysis of malam showed symptoms for bacterial dysentery in 85.7% and symptoms for amoebic dysentery in 14.3%. Analysis of Moothiram did not show any significant changes. Observation of Naadi showed that 52.4% Pitha vaatham 42.8% Vaatha pitham and 4.8% Kaba vaatham.

16. Incidence according to Neikuri examination:

Neikuri was performed in the present study shows that 33.4% of patients showed Vaatha neer; 57.1 % Pitha neer and 9.5% Kaba neer.

17. Incidence according to Haematological profile:

In the heamatological profile, haemoglobin content of blood, ESR/hr, and total count of leukocytes were studied.

17. a. Incidence according to Haemoglobin content:

The study of haemoglobin content showed that majority of patients had mild or severe anaemia due to loss of blood along with stools. Similar observations have been reported in the literature.

17. b. Incidence according to the reading of ESR/ hour:

The study of ESR showed that in 57.1% and 33.3% of patients, the ESR values were between 7 and 14 mm, and 14 and 21mm per hour respectively. These values were slightly above normal range. However in 4.8% patients, the values ranged between 1 and 7 mm.

17. c. Incidence according to Total Count of Leukocyte:

In the total count of WBC in the blood 66.7 % of patients had slightly increased WBC count that ranged between 8000-10000/cu.mm. In other cases the values were more or less normal. These observations showed that the infections were not severe in the present study.

18. Incidence according to urine analysis:

As far as urine analysis is concerned, it has been noticed that all patients excreted normal urine.

19. Incidence according to the Microscopic examination of stool and culture for *Shigella* sp. and *E.histolytica*:

The microscopic examinations of stools and culture for *Shigella* sp. and *E. histolytica* revealed that 18 patients were affected by *Shigella* sp. and 3 were affected by *E. histolytica*. Moreover the stools of all patients showed the presence of occult blood cells or erythrocytes.

20. Incidence according to Prognosis Assessment and Efficacy of Trial drug Madhulam pinju Choornam:

After confirming the diagnosis of types of Seethakazhichal, the patients were treated with Madhulam pinju Choornam with a dose of 250mg to 1.0gm, thrice a day after meals, with butter milk, depending on the age and body weight of the patients. The observation of signs and symptoms were followed as long as the patients were in the hospital as inpatients. The prognoses were keenly and clearly recorded. When all the symptoms disappeared the patients were discharged by examinig the stools, blood and other systemic signs and symptoms once again. It is clear that among 21 patients, who had been treated with Madhulam pinju Choornam, 20 were completely relieved from all systemic symptoms. The stool examinations also showed the absence of pathogens such as *Shigella* or *E. histolytica* in bacillary dysentery or amoebic dysentery infected patients respectively. This showed that Madhulam pinju Choornam had good effect in curing Seethakazhichal in 95.2% of patients and 4.8% of our trial, expressed moderate responses to Madhulam pinju Choornam.

All the treated cases were advised to have a follow up and lead a hygienic way of living, food environment as mentioned in “Thaeraiyer pini anuga vithi vozhukam”

SUMMARY

Seethakazhichal (Dysentery) is a pandemic disease affecting mainly the large intestine and very common in children as per the Siddha and Modern Systems of Medicine.

To treat children with Seethakazhichal, a Siddha Trial Drug; Madhulam pinju Choornam has been prepared. The collection, confirmation and purification of all ingredients have been described. The method of preparation of Madhulam pinju Choornam has also been described.

The biochemical analysis of the Trial Drug shows the presence of aminoacids, unsaturated compounds, tannic acid, ferrous iron, starch and the results have been tabulated and discussed.

The pharmacological effects such as antispasmodic, antidiarrhoeal, acute and chronic anti-inflammatory, antipyretic and styptic effects of Trial drug have been studied and the results have been tabulated and disussed.

The antimicrobial actions of the Trial Drug on enteroinvasive microbes such as *E.coli*, *Klebsiella*, *Shigella* sp., *Salmonella* sps., and *Staphylococcal* sp., have also been studied and the results have been tabulated and discussed.

The Trial Drug, Madhulam pinju Choornam has been used to treat 21 inpatients from (from Mar 08 to Dec 08) of children affected by

Seethakazhichal. Dehydrated children, children having lactose intolerance and in need of emergency treatment were excluded for this study.

Before treatment, the signs and symptoms for Seethakazhichal are noticed and confirmed by clinical analyses. During treatment, the dose of 250 mg to 1.0gm of Madhulam pinju Choornam, thrice a day after meals, along with buttermilk has been given to children affected by Seethakazhichal depending on their age, body weight and severeness of the disease.

No side effect or adverse effect has been noticed during treatment with Madhulam pinju Choornam. By analysing and taking into consideration of all these results, it is inferred that the Madhulam pinju Choornam has effective actions in controlling the Seethakazhichal.

CONCLUSION

Since Madhulam pinju Choornam has significant antimicrobial effects on intestinal microbes such as *E.coli*, *Klebsiella*, *Shigella* sp., *Salmonella typhi*, *Salmonella paratyphi*, and *Staphylococcal* sp., it has shown very good result in controlling bacillary dysentery. In the present observation, it is also proved that it is an effective treatment for amoebic dysentery.

The Biochemical analysis and the pharmacological effects of this drug, shows that these substances not only help to eradicate microorganisms in the intestine, or bring the normalcy in the physiology of intestinal tissues, but also act as supplement for various vitamins, aminoacids and minerals which also contribute their share to regain the health of the patients.

Apart from these, no adverse effects were observed in the Madhulam pinju Choornam treated patients. This drug is a herbal product, easily available, harmless to infants and children and hence it may be recommended for bacillary and amoebic dysentery. The dose of the drug used in the present study, is proved as adequate to use it as a paediatric drug to treat children with Seethakazhichal (dysentery) by child specialist.

ANNEXURE - I

Preparation and properties of Trial Medicine

Name of the trial medicine : Madhulam Pinju Choornam

Ingredients :

- Madhulam Pinju
- Kungiliyam
- Yelakkai
- Gashagasha

} Equal parts

Preparation of Trial Medicine:

The drugs are dried and purified. They are powdered well and filtered in a pure cloth and preserved in an air tight container.

Dosage:

250mg – 1g (The dose of the medicine was adjusted according to the age and weight of the children and severity of the disease), 3 times a day, after food.

Adjuvant : Butter Milk

Indication : Seethakazhichal Perungkazhichal

Reference : Gunapadam Mooligai Vaguppu .

Properties of the ingredients :

மாதுளம்:

Botanical Name : Punica granatum Linn

Family : Punicaceae

Synonyms : மாதுளங்கம் , தாடிமம் , கழுமுள்

Parts used:

Flowers, **Unripe fruit,** Rind of the fruit, Dried bark of stem and root.

Organoleptic characters:

சுவை	:	துவர்ப்பு
தன்மை	:	தட்பம்
பிரிவு	:	கார்ப்பு

Constituents:

Tannin	-	20-22%,	Moisture	-	78 %
Protein	-	1.6%	Fat	-	0.10 %
Potassium	-	33%	Magnesium	-	5.10 %
Phosphorus	-	0.07%	Iron	-	0.30mg / 100g
Riboflavin	-	100mg/100g	Vitamin C	-	16mg / 100g
Alkaloid	-	Punicotannicacid, Pelletieriene, Pseudopelletierine Piperidine, Pectin, Puniclain, Punicalagin			

Action:

- ❖ Astringent
- ❖ Stomachic
- ❖ Anthelmintic
- ❖ Styptic

Extracts of different parts of tree exhibit antibiotic activity and are effective against E.coli, pseudomonas aeruginosa, Salmonella and Shigella.

(Wealth of India vol -8)

குணம்:

மலக்கழிச்சல் சீதத்தால் வந்த கழிச்சல்

சலக்கழிச்சல் சோரியாற் சாரும் - பலக்கழிச்சல்

மாளும் புளிப்பான மாதுளம் பிஞ்சை யுண்ண

ஆளும் கண்மாதே அறி

- அகத்தியர் குணவாகடம்

மாதுளம் பிஞ்சால் கழிச்சல் நோய்கள் யாவும் போம்.

Uses:

- ❖ Unripe fruit is valuable in chronic diarrhoea, advanced stages of dysentry, Infantile diarrhoea and dysentery.
- ❖ It is used as diet in convalescence after diarrhoea.
- ❖ Pomegranate seeds along with pippli, black pepper and sugar are used for dyspepsia.
- ❖ Bark of the tree and rind of the fruit are used in chronic diarrhoea and dysentery.

குங்கிலியம்:

Botanical name : Shorea robusta Gaerten

Family : Dipterocarpaceae

Synonyms:

குங்கிலிகம், சருவரசம், குக்குலு , குக்கில், குக்கிலியம்

Parts used:

Resin, Bark , Fruits

(Medicinal plants and Raw drugs of India)

Organoleptic Charactes:

சுவை : கைப்பு

தன்மை : வெப்பம்

பிரிவு : கார்ப்பு

Constituents:

Sal resin contains an essential oil composed of Palmitic acid, Stearic acid, Arachidic acid, Oleic acid, Linoleic acid, Aminoacids such as Threonine, Valine, Leucine, Arginine are present.

(**Medicinal plants and Raw drugs of India)**

Action:

- ❖ Mild Astringent
- ❖ Aphrodisiac
- ❖ Stimulant
- ❖ Expectorant
- ❖ Diuretic

குணம்:

குங்கிலியத்தால் பெரும்பாடு, வெள்ளை, கழிச்சல், கிளைக்கின்ற புண் போம். (குணபாடம் மூலிகை)

குங்கிலியத்தால் திரிதோஷம், கிராணி, காணாவிஷம், மேகரணம், வாத நோய், நகங்களைப்பற்றிய விரணம் இவை போம்.

- பதார்த்த குண சிந்தமாணி

பயன்கள்:

குழந்தைகளுக்கு உண்டாகும் சீதகழிச்சலுக்கு சர்க்கரையுடன் சேர்த்து வழங்கலாம்.

Resin along with sugar administrated for dysentery in children and bleeding piles **(Indian materia medica)**

ஏலக்காய்:

Botanical Name : Elettaria cardamomum Maton.

Family : Zingiberaceae

Synonyms : ஆஞ்சி, கோரங்கம், துடி

Parts used:

Dried ripe seeds, Oil from fruits

Organoleptic Characters:

சுவை - கார்ப்பு

தன்மை - வெப்பம்

பிரிவு - கார்ப்பு

Constituents:

Moisture	-	20%	Protein	-	10.2%
Crude fibre	-	20.1%	Carbohydrate	-	42.1%
Mineral matter	-	0.13%	Phosphorus	-	0.16%
Iron	-	5mg / 100g			

Seeds contain volatile oil Terpinyl acetate, Cineole, Limonene, Nitrogenous mucilage, Ligneous fibre and Manganese.

Action:

- ❖ Aromatic
- ❖ Stimulant
- ❖ Carminative
- ❖ Stomachic
- ❖ Stimulant

குணம்:

தொண்டை வாய்கவுள் தாலுகுதங்களில்

தோன்றும் நோ**யதி சாரம்**பன் மேகத்தால்

உண்டை போல் எழுங்கட்டி கிரிச்சரம்

உழலை வாந்தி சிலந்தி விஷஞ்சுரம்

.....

ஆல மாங்கமழ் ஏல மருந்ததே - தேரையர் குணவாகடம்

ஏலம் தொண்டை, தாள், வாய், கீழ்வாய் இவைகளில் உண்டாகும் நோய்களையும், இருமல், கழிச்சல், நீர்ச்சுருக்கு, வாந்தி, நஞ்சு ஆகியவற்றை போக்கும். (குணபாடம் மூலிகை வகுப்பு)

- ❖ It checks nausea, vomiting , headache and stomach complaints
- ❖ It is used as a diet in convalescence after diarrhoea.
- ❖ It is used for diarrhoea along with pipali, liquorice and sugar

(Wealth of India Vol – 5)

கசகசா :

Botanical name : Papaver somniferum, Linn

Family : Papaveraceae

Parts used:

Ripe and dried capsules, Petals, **Seeds** , Inspissated juice (Latex)

Organoleptic characters:

சுவை : இனிப்பு

தன்மை : வெப்பம்

பிரிவு : இனிப்பு

Constituents:

Moisture, Protein, Crude fibre, Calcium, Phosphorus, Iron, Thiamine, Riboflavin, Nicotinic acid and minerals such as Iodine, Manganese, Copper, Magnesium, Sodium, Potassium and Zinc.

Also Contain lecithin, Oxalic acid, Pentosans and Enzymes such as Diastase, Emulsin, Lipase

Seeds have high protein content major being globulin which accounts for 55% of total nitrogen.

It also contains amino acids such as Arginine, Histidine, Lysine, Tyrosine, Tryptophan, Cystine, Threonine and Valine.

Poppy seeds are devoid of narcotic properties. (Wealth of India vol.7)

குணம்:

கிருமி நமைச்சல் **கிராணியதி சாரஞ்**

சிரநீர் அநித்திரை போஞ் செப்பில் - உருவழகுங்

காந்தியுமுண் டாகுங் கசகசா வின் குணத்தைத்

தேர்ந்தவர்க்கு விந்துமாந் தேர்

-பதார்த்த குணசிந்தாமணி

குடற்புழு, தினவு, குருதிகழிச்சல், சீதக்கழிச்சல், தூக்கமின்மை, தலைகணம் போம், உடல் வன்மை, அழகு ஆண்மை பெறும்.

Actions:

- ❖ Demulcent
- ❖ Nutritive
- ❖ Mild astringent
- ❖ Anti - Spasmodic
- ❖ Aphrodisiac
- ❖ Soporific

(Glossary of Indian Medicinal Plants)

Uses:

- ❖ Chronic diarrhoea

As a mild astringent with cardamoms and sugar is given in diarrhoea and dysentery and can be used as syrup in cough and Asthma.

ANNEXURE – II

BIO CHEMICAL ANALYSIS OF MADHULAM PINJU CHOORANAM

Preparation of the extract:

5gms of Madhulam Pinju Choornam was weighed accurately and placed in a 250ml clean beaker. Then 50ml distilled water was added and dissolved well. Then it was boiled well for about 10 minutes. It was cooled and filtered in a 100 ml volumetric flask and then it was made up to 100ml with distilled water. This fluid was taken for analysis.

QUALITATIVE ANALYSIS:

S.No.	Experiment	Observation	Inference
1.	TEST FOR CALCIUM: 2ml of the above prepared extract was taken in a clean test tube. 2ml of 4% ammonium oxalate solution was added to it.	No white precipitate is formed	Absence of Calcium.
2.	TEST FOR SULPHATE: 2ml of the extract was added to 5% barium chloride solution in a test tube.	No white precipitate is formed.	Absence of Sulphate.
3.	TEST FOR CHLORIDE: The extract was treated with silver nitrate solution	No white precipitate is formed.	Absence of chloride.
4.	TEST FOR CARBONATE: The extract was treated with concentrated HCl	No brisk effervessence is formed.	Absence of Carbonate.
5.	TEST FOR STARCH The extract is added with weak iodine solution.	Blue colour is formed	Indicates the presence of Starch..

6.	TEST FOR FERRIC IRON: The extract was treated with glacial acetic acid and potassium ferro cyanide.	No blue Colour is formed	Absence of Ferric Iron.
7.	TEST FOR FERROUS IRON : The extract was treated with conc. nitric acid and ammonium thio cyanate.	Blood red Colour is formed	Indicates the presence of ferrous Iron.
8.	TEST FOR PHOSPHATE: The extract was treated with ammonium Molybdate and concentrated nitric acid	No Yellow precipitate is formed	Absence of Phosphate.
9.	TEST FOR ALBUMIN: The extract was treated with Esbach's reagent.	NO Yellow precipitate is formed	Absence of Albumin
10.	TEST FOR TANNIC ACID: The extract was treated with ferric chloride.	Blue black precipitate is formed	Indicates the presence of Tannic acid.
11.	TEST FOR UNSATURATED COMPOUNDS: Potassium permanganate solution was added to the extract	It gets decolourised.	Indicates the presence of Unsaturated compounds.
12.	TEST FOR THE REDUCING SUGARS: 5ml of Benedict's qualitative solution was taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boiled for 2 mts	No Change in colour occurs	Absence of Reducing sugar
13.	TEST FOR AMINO ACIDS: One or two drops of the extract was placed on a filter paper and dried well and after drying 1% Ninhydrin was sprayed over the same and dried well	Violet Colour is formed	Indicates the presence of Amino acids.

ANNEXURE - III

ANTI-MICROBIAL (BACTERIAL) ACTIVITY OF MADHULAM PINJU CHOORANAM AGAINST SHIGELLA DYSENTERIAE, E.COLI, SOLMONELLA TYPHI, KLEBSIELLA, PROTEUS AND S.AUREUS.

Aim:

To identify the anti-microbial (Bacterial) activity of Madhulam Pinju chooranam against Shigella dysenteriae, E.coli, Solmonella typhi, Klebsiella, Proteus and S.aureus.

Medium : Muller Hinton agar

Components of Medium:

Beef extract	:	300gms /lit
Agar	:	17gms /lit
Starch	:	1.50gms /lit
Casein Hydrolysate:		17.50gms /lit
Distilled Water	:	1000 ml
pH	:	7.6

Procedure:

The media was prepared from the above components and poured and dried on a Petri dish.The organism was streaked on the medium and the test drug (1 gm drug in 10 ml of Water) was placed on the medium.

This is incubated at 37^0C for one over might and observed for the susceptbility shown up clearance around the drug.

Table: Anti-microbial susceptibility test report

Sl.No.	Name of the target organism	Zone diameter of inhibition (mm)	Reaction of the target organism
1.	*Escherichia coli*	14	Sensitive
2.	*Klebsiella*	13	Sensitive
3.	*Shigella dysenteriae*	13	Sensitive
4.	*Salmonella tythi*	12	Sensitive
5.	*Staphylococcus aureus*	09	Moderately sensitive
6.	*Proteus*	12	Sensitive

Result

The test drug Madhulam Pinju Chooranam was Sensitive against E.coli, Shigella dysenteriae Salmonella typhi, Proteus and Klebsiella and Moderately sensitive to Staphylococcus aureus

ANNEXURE IV

PHARMACOLOGICAL ANALYSIS OF TRIAL MEDICINE ANTI DIARRHOEAL STUDY OF TRIAL MEDICINE

Anti diarrhoeal study of trial medicine, Madhulam Pinju chooranam was done by charcoal meal method in rats.

Preparation of drug:

Madhulam Pinju chooranam was ground into powder by mortar and pistle and 100mg of powdered drug was dissolved in 5ml of buttermilk and 5ml of water.

Procedure:

Four albino rats of uniform weight and size were selected and divided two groups each having two rats. All the rats were fasted for 48 hours before starting the experiments. The first group was treated as control group and oral administration of distilled water (1ml) was made. The second group of rats was fed by trial medicine, Madhulam Pinju chooranam at a dose of 100 mg/100 gm of body weight.

After one hour, 0.5ml of 10% aqueous charcoal solution with gum acacia was given orally to all rats of each group by stomach tube.

All the two test group animals were sacrified by chloroform after one hour of charcoal treatment and the distance traveled by charcoal was

measured. The measurements were calculated by taking the distance travelled by charcoal from the pylorus upto the maximum distance it has passed in the intestine. The distance traveled by charcoal in experimental and control groups were tabulated.

Inference:

Percentage of the charcoal travel distance in the control group was 60cm. In group II animals treated with trail medicine, the charcoal travel distance was 27cm. The trial medicine is confirmed to have Significant antidiarrhoeal acitivity.

ANTIDIARRHOEAL ACTIVITY OF THE TRIAL MEDICINE ON RATS BY CHARCOAL MEAL METHOD

S.No	Name of Drugs/Groups	Dose/100gram body weight	Total Length of the intestine	Charcoal meal traveled up to	Remarks
1.	· Madhulam Pinju chooranam + Charcoal meal	100mg/1ml 1ml	97cm	27cm	Significant Action
2.	Water + Charcol meal	1ml 1ml	90cm	60cm	-

STYPTIC STUDY OF TRIAL MEDICINE

Styptic action of trail medicine, Madhulam Pinju Chooranam was studied on rats.

Procedure:

Four albino rats of uniform size and weight were selected and divided into two groups each having two rats. All the rats were anasthetised with other. The first group was treated as control and rats in group II were used for experiment with Madhulam Pinju Chooranam.

In control group, each rat was open cut through abdomen so as to expose the liver. Then a portion of the liver was cut by a sterilized scissor which resulted the bleeding. Simultaneously saline was applied over the bleeding area. The excessive blood oozing out from the cut region was removed by using blotting paper. The exact time taken for bleeding to stop was noted.

In experiment group, each rat was made to bleed as the steps followed in control group. But unlike the control group saline was replaced by Madhulam Pinju chooranam. Trial medicine was applied over the cut region of the liver soon after bleeding starts. The exact taken for bleeding to stop in experimental group was recorded.

Group	Average time taken for bleeding to stop (minutes)
Madhulam Pinju chooranam	2.00 min
Standard Vitamine – K Tab	2.55min
Control	4.55 min

Inference:

The styptic action of trial medicine was confirmed by the lesser time taken to stop bleeding when compared to control group. Thus the trial medicine is said to have Significant Styptic acitivity.

ANTI-SPASMODIC EFFECT OF TRIAL MEDICINE

Antispasmodic effect of trial medicine, Madhulam Pinju chooranam was carried out in isolated ileum of rabbit.

Preparation of the drug:

Madhulam Pinju chooranam was mixed with 5ml of buttermilk and 5ml of water.

Procedure:

A rabbit weighing about 1.1kg was selected and starved for 48 hours. But it was allowed to drink water. Then it was sacrified by stunning with a sharp blow below the head, followed by cutting the throat. Soon after, the abdomen was opened to expose the viscera. Then form intestinal loops (clearly Visible) the ileum was discussed out and placed on a shallow glass dish containing warm aerated tyrode solution. The lumen of the ileum was gently rinsed by saline with the help of 10ml pipette.

In fully relaxed state, the ileum was cut into required segments of about 4cm in length. Sutures were made to tie either end of the segments with the help of the needle in such a way that it was suspended in an inner tube of isolated organ bath maintained at 37^0C. The tube is connected with a jar containing nutrient solution supplemented with atropine sulphate at a concentration of 0.25mg/litre. The inner tube thus obtained the nutrient solution was also connected to out let tube as well as oxygen

tube. The ileum segment got oxygen by the aeration and fresh solution was filled after every test preceded by the removal of old nutrition solution through the outlet tube.

Acetylcholine stock solution (100mg/ml) was prepared after standardizing the optimum concentration required to contract the tissue. Then trial medicine was given to study the inhibitory effect of acetylcholine induced contractions.

0.2, 0.4, 0.6, 0.8 and 1 ml of acetylcholine were added to inner tube individually and run for 30 seconds at interval of 1 minute to each concentration. The tissue contraction at each concentration was recorded by kymograph.

0.5ml of trial medicine, Madhulam Pinju Chooranam was added and run for 30 seconds. Without draining the nutrient solution, 0.2ml of acetylcholine was added after one minute and the response was records. Then the concentration of trail medicine was increased to 1ml and the same procedure was repeated and the response was recorded.

Inference:

The trial medicine, Madhulam Pinju chooranam was found to have inhibitory action on acetylcholine induced contractions hence it is said to have good Anti spasmodic action.

ANTI – PYRETIC STUDY ON MADHULAM PINJU CHOORANAM

Aim:

To study the Anti-pyretic study of Madhulam Pinju Chooranam.

Preparation of the test drug:

1gm of Madhulam Pinju Chooranam was dissolved in 5ml of buttermilk and 5ml of water. 1ml of this preparation contains 100mg of the test drug.

Procedure:

3 groups of healthy albino rats were taken, each weights about 100-200gm and divided into three groups, each group consists of 2 rats. All the rats were made hyperthermic by subcutaneous injection of 12% suspension of yeast at a dose of 100mg/100gm of body weight.

10 hours later one group of animal was given the test drug (Madhulam Pinju Chooranam) at a dose of 100mg/100gm of body weight. The other group received distilled water at a dose of 1ml/rat and kept as control. The last group was given Paracetamol at a dose of 20mg/100gm of body weight and kept as standard.

The mean rectal temperature for 3 groups was recorded at 0hr, 1½hr, 3hrs, and 4½ hrs after the drug administration. The difference between the mean temperature of the control group, standard and the test drug were noted and compared.

Tabulation of Result obtained:

S.No	Name of the Drug /Groups	Dose/100gm body weight	Initial Temperature in centigrade	After Drug administration			Remarks	
				1 ½ hour	3.0 hour	4 ½ hour		
1.	Madulam pinju Chooranam	100mg/1ml	38 37	38.0 37.0	37.0 36.5	36.0 36.0	36.0	Significant Action
2.	Standard Paracetamol	20mg/1ml	37 38	37.0 37.0	36.5 36.5	35.0 34.0	34.5	-
3.	Control Water	2ml	36 37	36.0 37.0	36.0 38.0	37.0 39.0	38.0	

Inference:

The test drug Madhulam Pinju Chooranam has Significant Anti-pyretic action.

ACUTE ANTI-INFLAMMATORY STUDY ON MADHULAM PINJU CHOORANAM, BY HIND-PAW METHOD

Aim:

To study the acute anti-inflammatory effect of Madhulam Pinju Chooranam by HIND-PAW method in rats.

Equipment: Plethysmograph

Preparation of the test drug:

1 gm of Madhulam Pinju chooranam was mixed with 5ml of buttermilk and 5ml of water. The dose 1ml contains 100mg of the test drug.

Procedure:

Six healthy albino rats weighing 100-150 gm were taken and divided into three groups, each consiting of two rats.

First group was kept a control by giving distilled water orally of 2ml/100gm body weight. The second group was given Ibuprofen at a dose of 20mg/100gm wbody weight. The third group received the test drug, (Madhulam Pinju Chooranam) at a dose of 100mg/100gm body weight.

Before administration of test drug, the hind-paw volume of all rats was measured. This was done by dipping the hind-paw upto the tibio

tarsal junction in a mercury plethysmograph. While dipping the hind-paw, by pulling the syringe piston, the level of mercury in the centre small tube was made to coincide with remark and reading was noted from the plethysmograph.

Soon after measurement, the drug was administrated orally. One hour later, a sub-cutaneous injection of 0.1ml of 1% (W/V) carragenin in water was made into plantar surface of both hind paws of each rat. Three hours after carrageen injection, the hind-paw volume was measured once again. The difference between the initial and the final volume were calculated and compared.

The method is more suitable for studying anti-inflammatory activity in acute inflammation, the values are given below

S.No	Name of Drug /Groups	Dose/100gm body weight	Initial Reading averae	Final reading average	Mean difference	Percentage Inflammation	Percentage inhibition	Remarks
1.	Drug Madulam Pinju Choornam	100mg/1ml	0.87	1.15	0.28	32.9	67.1	Significant Action
2.	Standard Ibu Brufen	20mg / 1ml	0.55	0.85	0.3	35.2	64.8	
3.	Control Water	1ml	0.55	1.4	0.85	100	Nil	

Inference:

The test drug Madhulam Pinju Chooranam has Significant Acute Anti-inflammatory action.

CHRONIC ANTI-INFLAMMATORY EFFECT OF MADHULAM PINJU CHOORANAM

Aim:

To evaluate the chronic anti-inflammatory effect of Madhulam Pinju chooranam in rats by cotton pellets granuloma method.

Materials and method:

Drug preparation:

1gm of Madhulam Pinju chooranam was suspended in 10ml of distilled water with gum acacia as suspending agent.

Cotton pellet Granuloma method:

Procedure:

Six healthy albino rats of either sex weighing between 80-100 gm were selected and divided into 3 groups each containing 2 rats.

In this procedure the drugs were given daily for 7 days. Before giving the drug, cotton pellets each weighing 10 mg were prepared and sterilized in an autoclave for about one hour under 15 Pounds atmospheric pressure.

On the day of experiment, each rat was anaesthetised with ether to implant 10mg of sterilized cotton pellet subcutaneously in the lower abdomen two on each side after making suitable incision and sutured carefully.

First group was kept as control group by giving distilled water of 2ml/100gm of body weight to the second group the standard drug Ibuprofen in a dose of 10mg/ 100gm of body weight was given.

The third group of animals was given tested drug Madhulam Pinju chooranam in a dose of 200 mg/100g of body weight.

On the 8^{th} day of the experiment, all the rats were sacrificed and cotton pellets found to be surrounded by granulation tissue were removed and dried in hot air oven at 55^0 C-60^0 C.

Results:

The details of the experimental results are shown in the table.

EFFECT ON MADHULAM PINJU CHOORANAM

No	Name of Drug /Groups	Dose/100gm body weight	Pellet weight	Pellet weight of the Granuloma of drugs	Percentage of Inflammation	Percentage of inhibition	Rema
.	Drug Madulam Pinju Chooranam	100mg/1ml	10mg	100mg	40	60	Signifi
.	Standard Ibu Brufen	20mg / 1ml	10mg	55mg	22	78	-
.	Control Water	1ml	10mg	250mg	100.0	-	-

Inference:

The test drug Madhulam Pinju chooranam has Significant Chronic Anti-inflammatory action.

ANNEXURE V

LABORATORY DIAGNOSIS OF SHIGELLA SP. AND E.HISTOLYTICA

COLLECTION OF STOOL SPECIMEN:

Fresh stool specimens were collected in a clear, wide mouthed container with tightly fitted lid. Specimens that were mixed with water or urine and specimens take from patients who have recived barium enema, medications containing mineral oil, bismuth, antibiotics, antimarlarial or other chemical substances were considered unsuitable for examination.

Soon after collection, the lid of the container was tightly fitted to maintain adequate moisture. Stool specimens were never been frozen or thawed or placed in an incubator because parasitic forms may deteriorate rapidly.

TEST FOR OCCULT BLOOD (Benzidine test) IN STOOL SPECIMENT FOR BACTERIAL AND AMOEBIC DYSENTRY

The presence of blood in the stool specimens characteristic bacterial and amoebic dysentery was identified by this test.

Stool specimen was mixed with 5ml of water and from which 1ml of emulsified specimen was mixed with 1ml of benzidine reagent. 3% hydrogen peroxide was added. Blue colour reaction indicated the presence of blood in the stools.

STOOL CULTURE FOR Shigella sp.

Selective culture media must be used to recover the significant species of bacteria from specimens that may harbour a mixture of microorganisms. Variety of culture media (eg.S.S.agar, Hektoen (HE) agar and xylose lysine doxycholate (XLD) agar) containing inhibitors to the growth of normal bowel flora to allow Shigella sp.to grow is available.

In Shigella sp.culture SS agar was used since it contains five times the concentration of bile salts compared with Macconkey agar and is more inhibitory to E.coli.

The specimen from the container was touched by a sterile platinum loop and immediately transferred the inoculum into peptone water tube where it was kept for four to five hours to let the organism multiply. After inoculation the loop was immediately sterilized. The mouth of the tube was flamed before and after the inoculation and plugged with sterile cotton.

The dipped loop from peptone water tube was streaked on the S.S sugar plate in aseptic condition. It was incubated at 37 degree Celsius for 48hrs and the shigellae colonies was seen as colourless colonies after the incubation period. Single colony of Shigella was picked from the S.S agar plate and confirmed by the monospecific high titre sera for Shigella. Biochemical tests were not carried out since SS agar is highly selective

media for shigella and high titre sera are more specific to Shigella.

MICROSCOPICAL EXAMINATION OF STOOL SPECIMEN FOR E.HISTOLYTICA

VISUAL EXAMINATION

Freshly passed stool specimens were visually examined for the presence of barium, oils, or other materials that may render them unacceptable for further processing. Patches of blood or mucus was specifically selected for microscopic study because they may be deprived directly form ulcers or purulent abscesses where the concentration of amoebae may be highest.

PROCESSING OF STOOL SPECIMEN FOR OVA AND PARASITE EXAMINATION

Three preparations were usually done for liquid, soft semisolid stool and formed stool specimen. They are,

1. Direct wet mount
2. Concentrates
3. Permanent stained smears.

The first two preparations were done for rapid detection of intestinal parasites and the third preparation was not done as it is used for permanent mouths for future study on morphology of cysts and trophozoites.

Liquid stool specimen was examined within 30 minutes after collection or semiformed stools within 60 minutes, to detect motile trophozoites. Formed stool, in which trophozites are not expected, was examined upto 24 hours after passage.

1. Direct wet mount:

It was either done by

a) Direct saline mount or by

b) Iodine mount

The saline mount was made by emulsifying a small portion of faecal material in a drop of physiologic saline on a microscope slide and overlayed the mixed with coverslip. The mounts were not too thick or too thin as the parasites may be stained poorly (in iodine mount) in the former and forms low in numbers in later case.Saline mounts were prepared to observe the motility of trophozoites. Protozoan cysts also appeared more refractile in saline mounts than iodine preparations. In iodine mount one percent iodide and (1gm potassium iodide and 15g powdered iodine crystal to 100ml of distilled water) was used. Unlike saline, addition of iodine kill the organisms and therefore impossible to detect motility of amoebae.

Centrifugation of liquid or watery stools were carried out through it may not sediment trophozoites but it can sediment cysts.

Concentration methods:

Concentration methods were employed for the processing of semiformed stools since cysts, trophozoites present in low numbers still be detected. The two most commonly used methods are

1. Floatation method
2. Sedimentation method

Concentration by sedimentation (formal saline ether) was carried out. In this method small portion of stool specimen was mixed with 10ml of 10% formal saline and sieved by a strainer. From sieved suspension 6ml were taken in a tube in which 3ml of ether was added. After thorough mixing, it was centrifuged at 3000 rpm/minute. The deposited parasite was transferred to a slide after decanting the supernatant. Microscopically examination revealed the presence of cyst and iodine was used if necessary.

EXAMINATION OF CHARCOT – LEYDEN CRYSTALS FOR AMOEBIASIS

The crystals are particularly present in the stool with the ulcerative conditions of amoebic dystentry. They were diamond or needle shaped crystals when examining the stool for E.histolytica and found to be characteristic for amoebiasis.

ANNEXURE VI

GOVERNMENT SIDDHA MEDICAL COLLEGE

POST – GRADUATE DEPARTMENT

PALAYAMKOTTAI, TIRUNELVELI – 627 002.

Branch IV- KUZHANDHAI MARUTHUVAM.

CASESHEET PROFORMA FOR

"SEETHA KAZHICHIAL"

Ward	:	Religion	:
I.P.No	:	Nationality	:
Bed No	:	Date of admission	:
Name	:	Date of discharge	:
Age	:	Diagnosis	:
Sex	:	Result	:
Fathers Name:		Medical Officer	:
Occupation	:		
Income	:		
Address	:		
Informant	:		

Complaints and Duration:

History of Present illness:

History of Previous illness:

Birth History :

1) Antenatal history

2) Perinatal history

3) Neonatal history

Developmental history :

Dietetic history :

Feeding history :

TABLE 23: INPATIENT CASE REPORT OF TWENTY ONE CASES FOR THE DISEASE 'SEETHAKAZHICHAL'

S.No	I.P No	Age/Sex	Duration of illness	Signs and Symptoms	DOA	DOD	No. of days treated	Results
1	1348	6/FC	3	Passing red scanty loose stools mixed with mucus and blood , flatulence, tenderness over transverse colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels were present.	27.5.2008	29.5.2008	3	All symptoms relieved and discharged.
2	1396	5/MC	2	Passing brown scanty loose stools mixed with blood and mucus , abdominal pain rectal tenesmus indigestion, abdominal discomfort, tenderness over caecal region and ascending colon were present.	2.6.2008	3.6.2008	2	All symptoms relieved and discharged.
3	1636	8/MC	3	Passing red scanty loose stools with mucus and blood for 4 times a day, flatulence, raised body temperature tenderness over descending colon , indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels.	24.6.2008	27.6.2008	4	All symptoms relieved and discharged.
4	1688	12/MC	3	Passing red scanty loose stools or semisolid stools with mucus and blood , flatulence, raised body temperature, tenderness over both descending and transverse colon , indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, nausea and vomiting, post prandial evacuation of bowels.	28.6.2008	1.7.2008	4	All symptoms relieved and discharged.

5	1694	7/FC	4	Abdominal pain Abdominal discomfort indigestion, flatulence, tenderness over descending colon passing dark brown scanty loose stools with blood and mucus for 4 times a day, rectal tenesmus post prandial evacuation of bowels, nausea and vomiting were present.	30.6.2008	4.7.2008	5	All symptoms, except slight tenderness over descending colon are relieved and discharged
6	1706	8/MC	3	Passing red scanty loose stools mixed with mucus and blood, raised body temperature, indigestion, abdominal discomfort, abdominal pain, rectal tenesmus, tenderness over both descending and transverse colon were present.	1.7.2008	4.7.2008	4	All symptoms relieved and discharged.
7	1746	12/FC	3	Passing loose stools often mixed with blood and mucus, indigestion, flatulence, Abdominal pain, abdominal discomfort, rectal tenesmus, tenderness over descending colon, raised body temperature, Nausea and vomiting were present.	5.7.2008	7.7.2008	3	All symptoms relieved and discharged.
8	1747	2½/FC	2	Passing red scanty loose stools mixed with mucus and blood flatulence raised body temperature, tenderness over descending colon, indigestion, abdominal pain, abdominal discomfort, post prandial evacuation of bowels, were present.	5.7.2008	7.7.2008	3	All symptoms relieved and discharged.
9	1774	12/FC	4	Fever, abdominal pain and discomfort, indigestion, flatulence, passing red scanty stools mixed with blood and mucus 6 times a day, rectal tenesmus, tenderness over caecum and ascending colon were present.	8.7.2008	10.7.2008	3	All symptoms relieved and discharged.
10	1821	3/MC	3	Passing red scanty loose stools mixed with blood and mucus for 4 times a day, flatulence, indigestion, abdominal pain, abdominal discomfort, rectal tenesmus, tenderness over caecal region and ascending colon were present.	14.7.2008	16.7.2008	3	All symptoms relieved and discharged.

11	1954	3/FC	3	Passing red scanty loose stools with mucus and blood , flatulence, raised body temperature, tenderness over caecal desending colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels.	24.7.2008	28.7.2008	5	All symptoms relieved and discharged.
12	2069	3/MC	2	Passing brown scanty loose stools with mucus and blood , flatulence, tenderness over transverse and descending colon, indigestion, abdominal discomfort, abdominal pain, rectal tenesmus, nausea and vomiting were present.	9.8.2008	12.8.2008	4	All symptoms relieved and discharged.
13	2095	5/MC	3	Passing red scanty loose stools with mucus and blood , flatulence, tenderness over transverse colon, indigestion , abdominal discomfort, abdominal pain,raised body temperature, rectal tenesmus, post prandial evacuation of bowels were present.	13.8.2008	16.8.2008	4	All symptoms relieved and discharged.
14	2150	8/FC	3	Passing red scanty loose stools with mucus and blood , raised body temperature, tenderness over descending colon, flatulence, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels were present.	18.8.2008	21.8.2008	4	All symptoms relieved and discharged.
15	2151	2/MC	4	Passing red scanty loose stools with mucus and blood , flatulence , raised body temperature, tenderness over transverse colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, incessant cry were present .	18.8.2008	21.8.2008	4	All symptoms relieved and discharged.
16	2152	12/MC	3	Passing red scanty loose stools with mucus and blood , flatulence , raised body temperature, tenderness over transverse and descending colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, nausea and vomiting were present.	18.8.2008	21.8.2008	4	All symptoms relieved and discharged.

17	2190	4/MC	4	Passing red scanty loose stools with mucus and blood , flatulence , raised body temperature, tenderness over descending colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels were present	21.8.2008	24.8.2008	4	All symptoms relieved and discharged.
18	2191	6/FC	3	Passing red scanty loose stools with mucus and blood , flatulence, raised body temperature, tenderness over both descending and transverse colon , indigestion , abdominal discomfort, abdominal pain, rectal tenesmus were present.	21.8.2008	24.8.2008	4	All symptoms relieved and discharged.
19	2225	12/MC	4	Passing red scanty loose stools with mucus and blood , flatulence , raised body temperature, tenderness over descending colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, post prandial evacuation of bowels, nausea and vomiting were present .	23.8.2008	25.8.2008	3	All symptoms relieved and discharged.
20	2242	4/FC	3	Passing red scanty loose stools with mucus and blood , flatulence , raised body temperature, tenderness over transverse colon, indigestion , abdominal discomfort, abdominal pain, rectal tenesmus were present.	25.8.2008	27.8.2008	3	All symptoms relieved and discharged.
21	2361	12/FC	2	Passing red scanty loose stools with mucus and blood , flatulence, raised body temperature tenderness over both descending colon , indigestion , abdominal discomfort, abdominal pain, rectal tenesmus, were present.	6.9.2008	8.9.2008	3	All symptoms relieved and discharged.

Family history :

Socio economic history :

Immunization history :

General conditions on examination:

Consciousness :

Decubitus :

Stature :

Height :

Weight :

Head Circumference:

Mid arm circumference:

Nutrition :

Facies :

Skin changes :

Pallor :

Cyanosis :

Jaundice :

Erythema :

Haemangioma :

Lymphadenopathy :

Clubbing :

Koilonychia :

Jugular Vein pulsation :

Abdominal distention :

Engorge veins :

Pedal Oedema :

Temperature :

Pulse

Rate/Minute :

Rhythm :

Volume :

Tension :

Character :

Peripheral pulses :

Heart rate :

Respiration

Rate/Minute :

Type :

Character :

Blood Pressure :

	Right	Left
Upper limb		
Lower limb		

Congential abnormalities

(if any)

SIDDHA ASPECTS

Nilam:

Kurinchi :

Mullai :

Marutham :

Neithal :

Palai :

Paruvakalam:

Kaar (Aavani – Purattasi) :

Koothir (Iyppasi – Karthigai) :

Munpani (Markazhi – Thai) :

Pinpani (Masi – Panguni) :

Elavenil (Chithirai – Vaikasi) :

Muthuvenil (Aani – Aadi) :

Udal Nilai

Vatham :

Pitham :

Kabam :

Kalappu :

Gunam:

Sathuvam :

Rasatham :

Thamasam :

Mummalam

Malam :

Moothiram :

Viyarvai :

Poripulangal

Mei :

Vaai :

Kan :

Mooku :

Sevi :

Kanmendhriyam:

Kai -

Kaal -

Vaai -

Eruvaai -

Karuvaai -

Pira Uruppukalin nilai:

Iruthayam :

Puppusam :

Eraippai :

Kalleeral :

Manneeral :

Kudal :

Siruneeragam :

Siruneerpai :

Moolai :

Uyir Thathukkal:

Vatham:

Pirannan :

Abannan :

Viyannan :

Uthannan :

Samannan :

Naagan :

Koorman :

Kirukaran :

Dhevathathan :

Dhananjeyan :

Pitha:

Analam :

Ranjegam :

Sathagam :

Pirasagam :

Alosagam :

Kapha:

Avalambagam :

Kilethagam :

Pothagam :

Tharpagam :

Sandhigam :

Udar Thathukkal:

Saaram :

Senneer :

Oon :

Kozhuppu :

Enbu :

Moolai :

Sukkilam/Suronitham :

Ennvagai Thervugal:

Naa :

Niram :

Mozhi :

Vizhi :

Sparisam :

Malam

Niram :

Edai :

Erugal :

Elagal :

Moothiram

Neerkuri : Neikuri :

Niram :

Edai :

Manam :

Nurai :

Enjal :

Naadi :

MODERN ASPECTS

SYSTEMIC EXAMINATION:

- ❖ Examination of the obdomen :

Inspection :

- ❖ Shape of the abdomen
- ❖ Umblicus – Shape, discharage, inflammatrion, nodule etc.
- ❖ Movement
- ❖ Pulsation
- ❖ Dilated Veins
- ❖ Herinal orifices
- ❖ Skin
- ❖ Scars and sinuses

Palpation :

- ❖ Tenderness
- ❖ Guarding
- ❖ Rigidity
- ❖ Tumour
- ❖ Organomegaly

Percussion :

- ❖ Fluid thrill
- ❖ Shifting dullness

Ausculation :

- ❖ Bruit

Eamination of other system

Cardio vascular system :

Respiratory System :

Central Nervous System :

Genito urinary System :

LABORATORY INVESTIGATIONS

Motion

Macroscopic

Number :

Amount :

Colour :

Nature :

Reaction :

Microscopic

Ova :

Cyst of E.histolytica :

Trophozoites of E.histolytica :

Occult blood :

Charcot-Leyden Crystals :

Culture :

Blood

Total WBC Count :

Differential WBC Count :

Erythrocyte sedimentation

Rate ½ hr :

1hr :

Hemoglobin percentage :

Urine:

Albumin :

Sugar :

Deposit :

Daily Progress

Date	Symptoms	Medicine

Advice

GOVERNMENT SIDDHA MEDICAL COLLEGE AND HOSPITAL
POST GRADUATE RESEARCH CENTRE

PALAYAMKOTTAI

BRANCH-IV KUZHANDHAI MARUTHUVAM

ADMISSION-DISCHARGE SHEET FOR SEETHAKAZHICHAL

I.P. NO	:	Occupation	:
Bed no	:	Income	:
Ward	:	Nationality	:
Name	:	Religion	:
Age	:	Date of Admission	:
Sex	:	Date of discharge	:
Permanent address	:	Diagnosis	:
Temporary address	:	Results	:
Informant	:	Medical officer	:

CLINICAL PICTURES

S.No	Signs&Symptoms	During Admission	During Discharge
1	Frequency of Motion		
2	Nature of Motion		
3	Tenesmus		
4	Post prandial evacuation of bowels		
5	Abdominal pain		
6	Tenderness		
7	Incessant cry		
8	Fever		
9	Nausea and vomiting		
10	Others, if any		

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6. Thirumoolar Vaidyam Karukkidai 600
7. Noi Nidhanakal
8. Siddha Maruthuvam - Kuppusamy mudhaliar
9. Gunapadam mooligai Vaguppu - Murugesa mudhaliar
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